Pests

AND THEIR CONTROL

1946

MARCH

VOL. 14, NO. 3

ORGAN OF THE PEST CONTROL INDUSTRY

Exterminators
Fumigators
Termite Control Operators
Entomologists
Insecticide and Supply Mfgs.

7

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a 100% active toxicant, 82% isobornyl thiocyanoacetate, and 18% other active terpenes. Contains no diluents.

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a water-miscible form of Thanite containing 70% Thanite by weight. Forms an emulsion when added to water.

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contains 98 to 99% para-para isomer, and has a setting point of at least 103°C.

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a water-dispersible toxicant containing 25% DDT by weight. Answers the demand for a residual type DDT water spray.

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contains 25% DDT by weight. This toxicant is soluble in all proportions in base oils.

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Pests

and Their CONTROL

Exterminators, Fumigators, Termite Control Operators, Entomologists, Insecticide and Supply Manufacturers

COOPERATING WITH NATIONAL PEST CONTROL ASSOCIATION

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"Contributed articles in this publication do not necessarily reflect the opinions of the editors. The editors invite discussions, comments and all types of literary material pertaining to pest control and pests from any person interested in the advancement of the field."

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EDITORIAL

PCO Conferences March of Progress

THE STEADY PCO Conference March of Progress and the interest of the NCPA in the industry has become increasingly evidenced by the all-time-breaking records of attendance at the recently held Purdue, Eastern, and Southern PCO Conferences. The cross section of subjects discussed on new improvements in materials, chemicals, methods, technique of operations and service has certainly brought about an overwhelming desire of the PCO's to acquire the wealth of information and scientific knowledge that must be applied to the ever-growing PCO industry of today.

One of the most impressive factors sounded and stressed at these Conferences was that in order for any PCO to keep apace with the new type of aggressiveness he must keep abreast with the steady March of Progress. Never before has the Pest Control Profession demanded a knowledge of Chemistry, Entomology, Biology and other scientific branches of learning, in order to keep up with the steady research developments of our time. An attempt to evaluate the significance of these yearly conferences would only be minimizing their importance; unless one could see and hear what actually takes place in these busy sessions, one could never begin to realize their value.

The development of our ever growing industry and the phenomenal progress in the knowledge of insect structure, classifications, principles of insects and rodent control, fundamentals of insect and rodent lives, habits and history of insects and rodents and many other scientific factors that PCO's need to know, is all due to the splendid cooperation of the fine institutions where our Regional Conferences are held each year, and to the excellent guidance of those who are in charge of the meetings.

During the last few years, concentrated endeavor has been actuated by the PCO's to improve themselves due to the irresistible power of realizing the importance of becoming more proficient in the profession. One cannot afford to be indifferent if one is to compete with highly informed members of the industry in order to survive in business. All PCO Conferences are characterized by the spirit of determination to help all PCO's.

Our congratulations to the splendid staff of men who have been so generous in giving of their valuable time in order to help our industry become more profitable, and a profession that we all can be proud of!

Our hats off to the job well done!

New Orleans 1946 Convention City

ANY ONE who has attended a National Pest Control Association knows it is strictly serious business, which is as it should be. Nevertheless, in tune with the emotional release engendered by V-J Day, it is only natural that the membership, in selecting its first post-war convention site, should turn to New Orleans, a city renowned for its gracious hospitality, its good cheer and its festive overtones.

Founded over two centuries ago and scene of much history-making, New Orleans has many tourist attractions of genuine interest, from its beautiful Garden District to its romantic French Quarter, so reminiscent of old France, Spain and Italy. In composition the city's facade presents a striking but not dissonant contrast between the ultra modern and a venerable past, with many vestiges of its early life preserved.

That you may know more about this truly distinctive city, a series of sketches, first of which appears in this issue, will be published, depicting many of its variegated highlights. You will find them rewarding reading, an augury of what is in store if you attend the 14th annual convention scheduled for October 28, 29 and 30 next.

DDT Reports By the Hundred

SCIENTISTS say they cannot recall any scientific development—not excepting sulfa drugs, penicillin, or even the atomic bomb up to this time—that has resulted in such a sustained flood of factual technical reporting as the discovery and research development of DDT. Whole issues of the Journal of Economic Entomology have been devoted almost exclusively to brief scientific reports of research to determine the effects of DDT on specific pests —or its failure to control.

The swelling volume of DDT literature comes to a focus in a third list of publications on DDT which has been mimeographed by the Department of Agriculture as an aid to research workers and technicians interested in DDT. A modest first list of 174 titles covered articles published up to April 30, 1944. This covered the period when DDT was new and much of the information was still regarded as a military secret. Covering the last eight months of 1944, the second list included 418 titles, and the third list for the first half of 1945 lists 381 items. The last half of 1945 has seen active reporting on DDT and the total for 1945 is sure to exceed 1944.

These lists do not attempt to cover all of the many items on DDT appearing in daily newspapers and popular magazines. They list only a few special articles and editorial comments from such sources. The great majority are articles published in scientific journals covering entomology and medicine, and the technical journals of the chemical industry.

The results of experiments with DDT in the 1945 season are now being tabulated and reported, and 1946 is certain to see a continuation of the popular and scientific interest in DDT as an insecticide.

Correction Please

In the article "Summary of DDT Experiments on Insects That Affect Man and Animals" by Dr. W. E. Dove, which appeared on page 8 of the February issue please note the following corrections:

In paragraph 9, line 6, "Anthrnus" should be "Anthrenus."

On page 10, the first word after sub heading "Kerosene Sprays" should be "Five."

On page 14, sub heading "Wasp and Hornets" paragraph 3, the third word in line 2 should be "areaway."

Announcement of a Short Course in Pest Control at Purdue University, Lafayette, Indiana

April 29 to May 3, 1946

A SHORT COURSE of instruction on pest problems, for the benefit of Sanitary Inspectors and other state, county, and city officials concerned with pest control, will be held at Purdue University, Lafayette, Indiana, April 29 to May 3.

This course is sponsored by Purdue University in cooperation with the U. S. Fish and Wildlife Service, the U. S. Public Health Service, and the Indiana State Board of Health.

It is designed to provide officials with a thorough understanding of pest problems and the procedures to follow in the handling of such problems. Those participating include members of the Purdue University Department of Entomology staff and representatives of the cooperating agencies mentioned above.

The subjects that will be considered during the period of the course will include the fundamentals of insect and rodent biology; insecticides and rodenticides, including the new organic compounds such as DDT, 666, 1080, and ANTU, and the methods of applying these controls; pest control recommendations to the public; insect and rodent borne diseases; ratproofing; garbage and refuse disposal systems as they relate to pest control; organization and conduct of sanitary programs; and demonstrations in the use of poisoned baits and gases, rat-proof construction, and food handling.

A manual, which will include outlines of the discussions and other useful information, will be provided to those who attend. A registration fee of $5.00, which includes the conference manual, will be charged, and persons desiring to attend should register in advance with Professor J. J. Davis, Department of Entomology, Purdue University, Lafayette, Indiana, in order that adequate meeting rooms and a sufficient number of manuals will be available.

Lodging accommodations during the week of April 29 should be made as far in advance as possible. If you plan to attend, **write immediately** to the Purdue Memorial Union, Fowler Hotel, or Lahr Hotel for a reservation. Room prices are $2.50 at the Purdue Memorial Union (all rooms with bath); $2.00 up without bath and $2.75 up with bath at the Fowler Hotel; and $1.50 up without bath and $2.25 up with bath at the Lahr Hotel. Single rooms may be difficult to obtain and it is suggested that rooms for two persons be taken where possible. Most of the meetings will be held in the Purdue Memorial Union on the Purdue campus.

PROGRAM

SHORT COURSE ON PEST PROBLEMS FOR SANITARY INSPECTORS

Purdue University, Lafayette, Indiana

April 29—May 3, 1946

Sponsored by Purdue University in cooperation with the U. S. Fish and Wildlife Service, the U. S. Public Health Service, and the Indiana State Board of Health.

Monday—

8:00 a.m.-9:00 a.m.—Registration—Purdue Memorial Union

9:00 a.m.-12:00 noon—Purdue Memorial Union

Purpose of the Short Course for Sanitary Inspectors ..... J. J. Davis, Purdue University

Words of Welcome ..... Associate Dean V. C. Freeman, Purdue University

The Goal of a Community Sanitation Program ..... J. G. Terrill, U. S. Public Health Service

Need for Permanent City Rat Control Organizations ..... F. E. Garlough, U. S. Fish and Wildlife Service

Relation of Commercial Pest Control Operators to Community Sanitary Programs ..... Elmer A. Kuntz, National Pest Control Assn.

1:30 p.m.-5:00 p.m.—Purdue Memorial Union

The Economic Importance of Insects and Their Relation to the Public Health ..... B. F. Montgomery, Purdue University

The Relation of Insect Structure and Development to Insect Control ..... G. E. Lehker, Purdue University

The Fundamentals of Insect Prevention and Control ..... J. J. Davis

Some Common Insects Affecting Man and Their Control ..... H. O. Deay, Purdue University

Insect Problems in Food Manufacturing Plants ..... G. E. Gould, Purdue University

Tuesday—

9:00 a.m.-12:00 noon—Purdue Memorial Union

DDT and Other New Organic Insecticides ..... J. J. Davis

The Application of Insecticides ..... G. E. Gould

Recommendations to the Public for Insect Control ..... G. E. Lehker

1:30 p.m.-4:30 p.m.—Purdue Memorial Union

Identification, Life Histories, and Economic Status of Rats and Mice ..... F. E. Garlough

Communicable Diseases and Their Control ..... Dr. G. M. Brother, the Indiana State Board of Health

The Proper Care of Foodstuffs on Residential and Business Properties ..... Herchel Engler, U. S. Public Health Service

Garbage Containers ..... G. O. Oderkirk, U. S. Fish and Wildlife Service

Wednesday—

9:00 a.m.-12:00 noon—Purdue Memorial Union

Constructional Rat-proofing in Cities ..... John S. Wiley, U. S. Public Health Service

Simple Rat-proofing Methods ..... H. J. Spencer, U. S. Fish and Wildlife Service

Rat-proofing Public Waste Disposal and Utilities Systems ..... B. A. Poole, Indiana State Board of Health

Getting the Job of Rat-proofing Done ..... F. E. Garlough

1:30 p.m.-4:30 p.m.—Purdue Memorial Union

Public Relations ..... John Mellott, Public Service Company of Iniana, Inc.

Preferred Systems of Municipal Garbage and Refuse Disposal ..... B. A. Poole

City Ordinances Relating to Pest Control and Their Enforcement ..... F. E. Garlough

City Rat Control Organization and Required Personnel, Rat Surveys, and Files and Records ..... J. W. Johnston, Health Department, City of Buffalo, N. Y.

Thursday—

9:00 a.m.-12:00 noon—Purdue Memorial Union

The Use of Compound 1080, ANTU, and Other Poisons in Rat Control ..... H. J. Spencer

Effective Bait Materials, Gases, and Supplementary Methods ..... G. C. Oderkirk

An Educational Program for Community Rat Control ..... J. W. Johnston

1:30 p.m.-4:30 p.m.—(To be announced Thursday morning)

Field Demonstrations, to be rotated one hour each.

Group 1 (A-H)—Preparation and Exposure of Poison Baits, the Use of Calcium Cyanide, Traps, and Other Methods ..... H. J. Spencer and K. C. Oderkirk

Group 2 (I-P)—Rat-proofing Construction ..... H. J. Spencer

Group 3 (Q-Z)—Food Handling for Rat Control ..... John S. Wiley

Friday—

9:00 a.m.-12:00 noon—Purdue Memorial Union

Application of Pest Control Methods to Community Programs ..... G. C. Oderkirk

Quiz on the Week's Work and Round Table Discussion.

Special Meetings: To be announced. One or more evenings will be given over to moving pictures of special interest in pest control and sanitation.

Purdue Conference Par-Excellent

THE 10TH ANNUAL PCO Conference, held at Purdue University, Lafayette, Indiana, January 28-February 1, under the direction of J. J. Davis, was outstanding in quality and attendance. The record attendance was over 260, with another record of 27 states and Canada being represented. Of those who attended 109 were there for the first time and seven (Bill Buettner, Norman Dold, Harlem Ives, Art Srebren, W. W. Scott, Jules Smith, and George Hockenyos) have attended all 10 conferences. Perhaps it should be recorded also that J. R. Franklin, Martin Meyer, William Phippard, H. K. Steckel, Bob Yeager, and Ben Culver, have attended 9 of the 10 years.

As the days passed by during the week it was evident Professor Davis did have a stand-in with the weather man, for in general the weather was ideal.

All afternoon Sunday, January 27, the "students" were rolling in and by 6:00 P.M. at least 75 had registered.

The first day, Monday, January 28, was given over to fundamentals with staff members of the Purdue Entomology Department taking over. J. J. Davis, B. E. Montgomery and G. E. Lehker discussed the fundamentals of insect structure, biology, and control, while H. O. Deay handled the sessions on classification. In an alternate group, C. A. Vincent-Daviss and George L. Hockenyos reviewed chemical fundamentals as discussed at previous conferences.

Monday evening was set aside for the basket ball game between Wisconsin and Purdue, which fortunately resulted in a Purdue victory, 59 to 46. This favorable result was probably due largely to the 125 rabid Purdue fans in the PCO section.

The Tuesday morning session, under the guidance of George Hockenyos, provided up-to-date material on the chemistry of insecticides, with George Hockenyos, C. A. Vincent-Daviss, and Ira Hatfield providing the instruction. In addition, E. F. Sennewald demonstrated simple tests for certin poisons and W. E. McCauley, recently back from the Pacific War Arena, discussed and demonstrated solvents for DDT.

Tuesday afternoon Charles Pomerantz of New York gave an enthusiastic and valuable discussion on ticks, with special reference to the brown dog tick which is becoming an increasingly important problem in the northern states. The talk was well illustrated with enlarged photographs.

Also on the Tuesday afternoon program was M. R. Stephens, in charge of the Chicago office of the federal Food and Drug Administration. As explained by Mr. Stephens, the Food and Drug officials are charged with the responsibility of inspecting for adulteration of food and drugs in interstate commerce as well as the premises on which they are manufactured or stored. Such adulteration includes, among other items, insects, insect fragments, insect feces, rodent hairs and feces. The federal inspectors make no suggestions or recommendations on how to eliminate contaminated food products and insanitary premises, but only point out such conditions. However, he did state that if PCO's could get rid of insects and rodents in food factories it would largely solve the filth problem of the Government. Some of the insect problems in food processing plants were discussed by George E. Gould of the Purdue Entomology Department. After discussing the insects and sources of infestation, Doctor Gould emphasized the opportunities opening up for pest control in food plants. The food manufacturer needs the services of a reliable pest control operator to keep his products and his plants up to the standards set by the Food and Drug officials.

Tuesday evening was open for group meetings including group meetings of the Orkin Company, Vogel-Ritt Associates and others. The Indiana Pest Control Operators Association held its annual meeting which is reported elsewhere in this issue. For those not attending group meetings, an impromptu meeting was held Tuesday evening, consisting of a "bull" session on questions and answers, also a demonstration of a new compressed air sprayer used by the army during the war, which was demonstrated by Captain L. C. Truman of the 5th Service Command.

New developments in the field of rodent control took the attention of the conference members Wednes-

The Tenth Annual Purdue Pest Control Operators Conference at Purdue University, January 28, 29, 30, 31 and February 1, 1946

FUMIGATION NEWS

MARCH 1946

Published in the interest of Pest Control Operators and the use of
AERO BRAND HCN DISCOIDS AND CYANOGAS
by Insecticide Department of
American Cyanamid & Chemical Corporation
Kansas City 6, Mo. 30 Rockefeller Plaza, New York 20, N. Y. Azusa, Calif.

CYTOX LIQUID CONCENTRATE CONSTITUTES AN IMPORTANT NEW MATERIAL FOR PEST CONTROL OPERATORS

Along with AERO* BRAND HCN DISCOIDS and CYANOGAS**, the new Cyanamid CYTOX* 25% DDT LIQUID CONCENTRATE will hereafter constitute an important supplementary control material for Pest Control Operators. While hydrocyanic acid gas and CYTOX 25% DDT LIQUID CONCENTRATE will quickly rid domestic and industrial premises of insect infestation, CYTOX also insures against re-infestation from outside sources. For CYTOX LIQUID CONCENTRATE can be used to make a 5% DDT spray which leaves a minute crystaline residue that remains toxic to insects for a prolonged period.

CYTOX LIQUID CONCENTRATE contains 25% DDT-Technical, which is completely dissolved and ready for further dilution in kerosene or other petroleum vehicles. For example, one gallon of CYTOX 25% LIQUID CONCENTRATE contains 2.25 pounds of DDT-Technical. Added to 5 gallons and 3 pints of an average petroleum vehicle, one gallon of CYTOX LIQUID CONCENTRATE makes 6 gallons and 3 pints of a Household and Sanitary Solution containing 5% DDT by weight. *A finished spray made from* CYTOX LIQUID CONCENTRATE *and a deodorized kerosene is practically odorless and colorless.*

The 5% solution made from CYTOX LIQUID CONCENTRATE is the residual spray most effectively used for insect pest control in domestic dwellings, barns, food-processing plants and institutions. It has been found highly satisfactory in controlling house flies, mosquitoes, gnats, bedbugs, ants, carpet beetles, clothes moths, fleas, roaches, silverfish and firebrats. Sprayed on floors, walls and partitions in flour mills, food-processing plants, empty grain bins and box-cars, it controls weevils, flour beetles and cadelles.

CYTOX LIQUID CONCENTRATE remains stable at temperatures as low as 5° below zero Fahrenheit. Sprays containing 5% DDT made from CYTOX LIQUID CONCENTRATE also are stable at equally low temperatures.

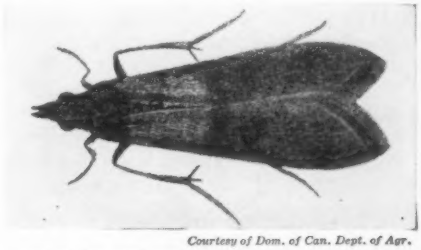
If CYTOX LIQUID CONCENTRATE is used to prepare odorless household sprays, a deodorized petroleum base oil should be used. Where a kerosene odor is not objectionable any high grade kerosene vehicle may be used. CYTOX LIQUID CONCENTRATE is also excellent for mixing with special purpose solvents where kerosene or deodorized base oils cannot be used.

For further information on the proper proportions and vehicles to use in preparing finished sprays from CYTOX LIQUID CONCENTRATE for your particular needs, write to nearest office shown above.

STORED COMMODITY INSECTS

Indian Meal Moth

The Indian meal moth is a common pest in grocery stores. Similar in size to a clothes moth, it has a wing spread of almost three-fourths of an inch. The fore wings are pale grey with the outer two-thirds a coppery or reddish-brown.



Courtesy of Dom. of Can. Dept. of Agr.
The Indian meal moth infests stored food products.

The eggs of this pest hatch in four or five days to larvae of about one-half inch in length, varying in color from hues of yellow to green or pink. The larva spins a cocoon in which it transforms to a light brown pupa, which finally emerges as the adult moth. Development from egg to adult consumes about a month in warm weather.

A satisfactory kill of the general run of such insects infesting grocery stores and plants manufacturing, handling, and storing foodstuffs and other commodities, can be made with HCN fumigation. Regular periodic fumigation is the best method of keeping the ever-present insect problem under control.

HCN DISCOIDS are spread in a fumigation chamber to kill insects attacking stored commodities.

FUMIGATION CHAMBERS PAY FULL DIVIDENDS

Among progressive Pest Control Operators the use of fumigation chambers is increasing. It has been found that a simple type of atmospheric chamber can be constructed at a very reasonable cost, and, with little effort, can be turned into a profitable enterprise.

Today there is a large and growing need of fumigation for protection against insect damage to furs, clothing and rugs, and various food products in storage. Formerly, practically all such articles were kept in cold storage. Far superior to this practice is the present fumigation method with AERO BRAND HCN DISCOIDS because fumigation kills all moth life and consequently the articles are returned to the customer insect-free. Cold storage merely *suspends* insect activity without killing the insects. Another important advantage of fumigating with HCN DISCOIDS is that the cost of fumigation operations is only a fraction of the cost of operating a cold-storage plant.

Also, the use of HCN DISCOIDS in fumigation chambers offers the greatest convenience, as well as effectiveness and economy. When fumigating in a chamber of ordinary size, it is only necessary to open one container of DISCOIDS and scatter the contents on the floor of the chamber. The entire application takes less than a minute.

Pest Control Operators will do well to investigate the advantages of operating a fumigation chamber—for it not only is a profitable investment in itself, but also frequently provides the means of bringing in new customers for general service.

For more information on fumigation with AERO BRAND HCN DISCOIDS and CYANOGAS** Calcium Cyanide, write for free manuals.

*Trade Mark **Reg. U. S. Pat. Off.

day. The morning session presided over by Martin Meyer, was devoted entirely to discussions of the two new rodent poisons—ANTU and Compound 1080. Justus Ward of the Denver Laboratory of the Fish and Wildlife Service led the discussions and reported on experimental work in the field and told of the considerable success with ANTU in eradicating rodents in entire city blocks. Demonstrations on the use of these two new poisons was conducted by Galen Oderkirk, also a representative of the Fish and Wildlife Service. Mr. Oderkirk showed the effectiveness of the poisons and also discussed safety measures which had to be used in handling them.

Wednesday afternoon was a continuation of the rodent program Dr. M. D. Pirnie of Michigan State College discussed the adaptability of rodents and their quickness to seize on opportunities to establish new colonies. Doctor Pirnie pointed out the changing attitude of food plant managers, as a result of federal food inspection laws and whereas they were once interested only in keeping rodents down, now they are interested in complete eradication. Complete eradication does not end the need of the PCO's services as some think, according to Doctor Pirnie, for all the time new situations are arising and skilled help is needed by a great many food processing plants, stores, mills, warehouses, etc. Galen Oderkirk discussed sanitation and rat-proof construction as essentials in permanent rat and mouse control. Henry Turrie showed a new film strip which he developed, and which brought out especially rat-proofing procedures. The afternoon session was concluded with methods of handling putrefactive odors by George Hockenyos and Justus Ward.

Wednesday evening was given to a round-table discussion of new insecticides and insecticide appliances conducted by J. J. Davis.

Thursday morning was devoted to fumigation problems with emphasis on industrial fumigation by Dr. R. C. Cotton of the U. S. Bureau of Entomology and Plant Quarantine. Doctor Cotton also discussed stored products insects,—their origin, importance, and recognition. Harvey Sturgeon gave some of his personal experiences in industrial fumigation and the morning program was concluded with a discussion and demonstration on the use of gas masks and canisters by Herman Militzer.

The Thursday afternoon program included talks on Wood Technology and Wood Rots by E. W. Stark and C. L. Porter, respectively, both on the Purdue staff. Frank Wallace, State Entomologist of Indiana pointed out some of the problems and pitfalls of legislation.

Thursday evening, a group of some 275 gathered in the North Ball Room of the Purdue Memorial Union to enjoy the annual dinner and festivities. Following the dinner, Professor Davis introduced the toastmaster of the evening Executive Dean and Vice-President of Purdue University, Frank C. Hockema, who presided with wisdom and wit. Speakers included Dean Freeman, Theodore Oser, and Bill Buettner.

Dean Hockema read the following telegram from President Emeritus Edward C. Elliott, "Will you serve as my radar transmitter of vibrations of greeting to Bill Buettner and all other inhabitants of PCO, known to the wise as planet of confirmed optimists. May their efforts to rid world of roaches, rats, and racketeers continue for the greater glory of mankind."

Frank Wallace, State Entomologist of Indiana, sold Indiana as a place to come to, with his colored pictures of Indiana scenes and his Hoosier wit.

A committee, headed by H. K. Steckel, presented the following resolutions:

Whereas we, 261 members in attendance at the Tenth Annual Purdue Pest Control Operators' Conference wishing to express our appreciation of the leadership and facilities placed at our disposal, do hereby resolve:—

1. That this expression of our gratitude be transmitted to President F. L. Hovde.
2. That we do hereby thank Dean H. J. Reed, Dean V. C. Freeman, Professor J. J. Davis, and other members of the Purdue Faculty for the planning and preparation that has made this Conference so successful.
3. That we do hereby thank Executive Dean Frank C. Hockema and Mr. Frank N. Wallace, State Entomologist of Indiana for their participation and encouraging remarks at the Annual Banquet.
4. That we extend cordial greetings and best wishes to President Emeritus Edward C. Elliott, who so graciously sent us greetings.
5. That we do hereby express our thanks to the Bureau of Entomology and Plant Quarantine, and the Predator Division, Fish and Wildlife Service for their helpful participation in this Tenth Annual PCO Conference.
6. That we do hereby thank those men from neighboring universities, and the technical and research men so kindly assigned to this Conference for our bettermen.
7. That we thank Mr. Vallely and the staff of Purdue Memorial Union for their gracious hospitality and for the efficient manner in which they have handled our many needs and made our visit most enjoyable.
8. That we do hereby commend Purdue University for their foresight and constructive work to the end that a full four-year course may be provided for students wishing to engage in structural pest control.

In appreciation of his work over the years in conducting schools at Purdue University and over the United States, the pest control industry presented Professor J. J. Davis with cash for a new automobile, "when cars become available", and to put new doors on his garage so as to properly house the new car. In addition to this gift and gifts to members of the Purdue instructional staff, over $300.00 was added to the Research Fund, and $200.00 to start a fund for an adult Education Building.

The concluding program on Friday morning, in charge of B. C. Scherzinger, included a discussion of wood-attacking insects, other than termites by Ira Hatfield, a new device for termite-proofing buildings by Walter B. Hill and a general discussion on termite problems.

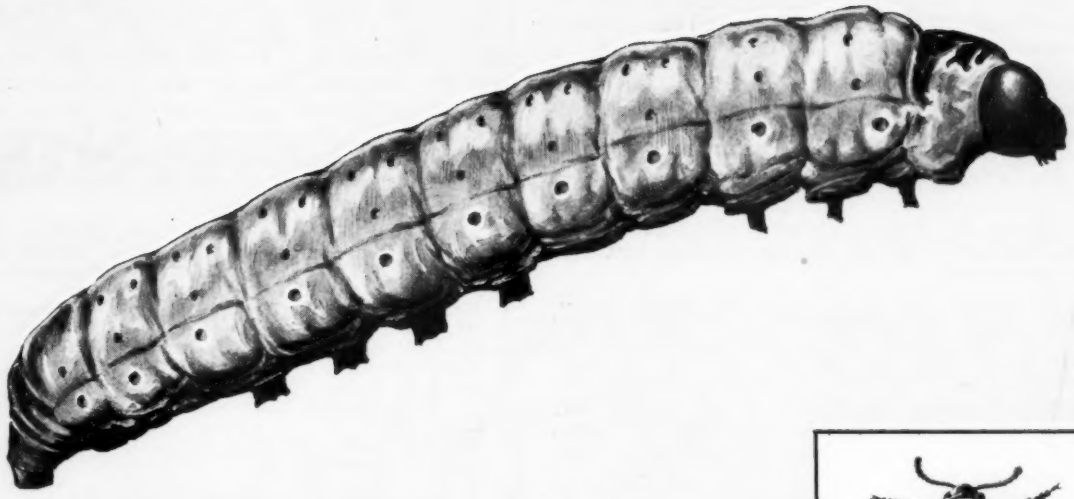
Four Ex-Servicemen Join MM&R

Pictured here are four new men who have been added to the staff of Magnus, Mabee & Reynard, Inc., New York importers and manufacturers of Essential Oils and kindred products. Left to right, ROY E. WEBB, Chemist, formerly a 2nd Lieutenant with the Army Air Forces; CHARLES B. TAXIER and STANLEY T. OLDS, sales representatives for the metropolitan area, ex-Sergeant and First Lieutenant respectively; F. KENNETH STEPHENSON, JR., Asst. Manager, Order Dept., formerly a Captain with the AAF Personnel Distribution Command.

Notice

We are glad to print personal items of interest. Send us interesting or newsy items about yourself or your family. This magazine is for the Pest Control Industry, and news about YOU is interesting

CODLING MOTH—causes millions in annual damage to apples and other fruits



COLORADO POTATO BEETLE

CODLING MOTH

JAPANESE BEETLE

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Tests in the agricultural field, to be conclusive, generally require several growing seasons. As a result, only tentative formulation recommendations have been made pending further research.

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Eastern PCO Conference

THE 6TH ANNUAL EASTERN PCO Conference was held at Massachusetts State College, Amherst, February 4, 5 and 6. Registrants and guests totaled 158, the largest attendance to date. The program, which emphasized the new insecticides and rodenticides, attracted numerous health officials in addition to PCO's from the East, Midwest, and Canada. Both the material and the mechanism of the Conference were acclaimed of outstanding excellence.

The Monday sessions were devoted to "bringing Pest Control up-to-date". The chemistry, solvents, formulations, and application of DDT, DDD, "666", and other of the newer substances, were intimately discussed and demonstrated. A highly original and effective demonstration of "application and equipment" was presented by Phil H. Mayer, Jr. In the evening, eloquent demonstrations of fumigation safety measures, using test animals, were conducted.

Pursuant to the Conference's own "five year plan", Tuesday was devoted to the "bug of the year"—in this instance, the stored food pests group. Laboratory work included identification of species and damage. Permanent mounts, prepared under the direction of curator Dr. Marion E. Smith, were presented to the 95 earliest registrants. Dr. Richard T. Cotton discussed methods of control of stored food pests. The contamination problem was explored by Boston representatives of the U. S. Food and Drug Administration.

B. W. Eldredge served as toastmaster at the banquet, at which Dr. C. R. Twinn, of Ottawa, Canada, was the guest speaker. Dr. Twinn discussed the early history of entomology. The complete text appears elsewhere in this issue.

The final day was concerned with developments in the rodent control field. Mr. Justus C. Ward of the Wildlife Research Laboratory, Denver, led discussions of compound 1080, ANTU, and the new German poisons. Comprehensive tests of these materials, as feeding and tracking poisons, were conducted by Walter Dykstra. The rodent program was under the direction of Mr. George B. Lay, U. S. Fish and Wildlife Service. As with the other sessions, ample "Q and A" periods were provided for, and participation was unusually general and pertinent. Next year the "Bug of the Year" will be Dermestids.

Sixth Annual Eastern PCO Conference at Massachusetts State College, February 4, 5, 6, 1946.

Second Annual Meeting Florida Pest Control Assn.

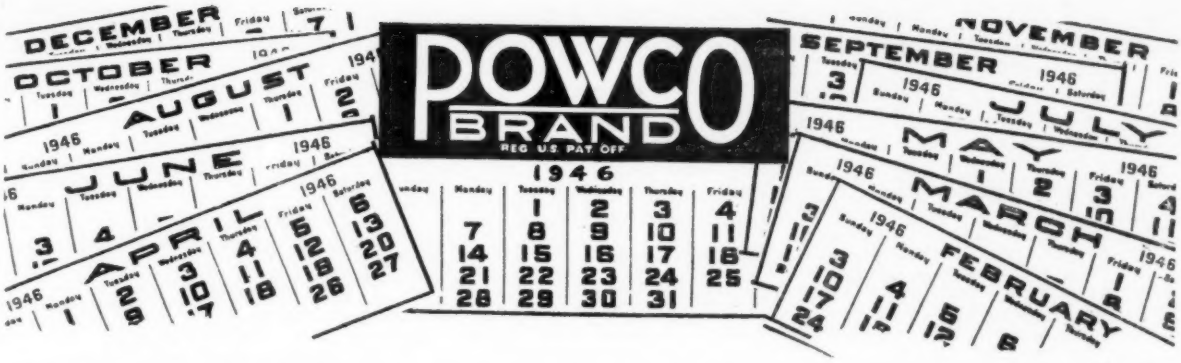
THE SECOND ANNUAL MEETING of the Florida Pest Control Association was held at the University of Florida, Gainesville, Florida, Thursday, Friday and Saturday, January 10th, 11th and 12th, 1946.

This Meeting was sponsored by the Department of Entomology, College of Agriculture, University of Florida and the Florida Pest Control Association in cooperation with the National Pest Control Association.

Attending this successful conference, which was high-lighted by the presence of Mr. Theodore Oser and Mr. William O. Buettner, President and Secretary of the National Pest Control Association respectively, were the following:

1. Mr. R. E. Herod, Pest Control Clinic, Hamilton, Ontario, Can.
2. Mr. J. Seidman, Pest Control Operator, Detroit, Mich.
3. Mr. W. G. Waldron, Waldron Exterminating Service, Sebastian, Florida.
4. Mr. J. F. Myers, S. B. Penick Co., Atlanta, Georgia.
5. Mr. E. Haedrich, D. R. Barnhart Co., Daytona Beach, Fla.
6. Mr. D. R. Barnhart, D. R. Barnhart Co., Daytona Beach, Fla.
7. Mr. M. H. Lane, Orkin Exterminating Co., Inc., Orlando, Fla.
8. Mr. J. P. Walker, Walker Chemical & Ext. Co., Orlando, Fla.
9. Mr. F. A. Morton, Entomologist, Bur. Ent. & Pl. Quar., Orlando, Fla.
10. Mr. M. F. Canle, American Cyanamid Co., New York, N. Y.
11. Mr. G. H. Chapman, American Cyanamid Co., New York, N. Y.
12. Mr. C. I. Green, Orkin Exterminating Co., Inc., Tampa, Fla.
13. Mr. W. H. Helms, Orkin Exterminating Co., Inc., Jacksonville, Florida.
14. Mr. Hollis Cunard, Orkin Exterminating Co., Inc., Jacksonville, Florida.
15. Mr. P. C. Cissel, Past Pres., National Pest Control Assn., Washington, D. C.
16. Mr. F. deL. Clements, Sou. Pest & Maintenance Service, Ft. Lauderdale, Fla.
17. Mr. T. H. Adkins, Sou. Pest & Maintenance Service, Ft. Lauderdale, Fla.
18. Mr. E. M. Holmes, Termite Terror Co., Daytona Beach, Fla.
19. Mr. Newton Weiss, Pest Control Operator, St. Petersburg, Fla.
20. Mr. J. P. Guerney, J. P. Guernsey Ext. & Fumigator, Lakeland, Florida.
21. Mr. Arthur Myers, Myers Exterminators (with Guernsey), Lakeland, Florida.
22. Mr. W. W. Hubbard, Sou. Pest & Maintenance Service, Lakeland, Florida.
23. Mr. C. E. Tribble, Tribble Pest Control Service, Miami, Fla.
24. Mr. C. A. Powell, Termite Eradicator, Gainesville, Fla.
25. Mr. E. E. Henderson, Termite Eradicator, Gainesville, Fla.
26. Mr. O. P. Brink, Orkin Exterminating Co., Inc., West Palm Beach, Fla.
27. Mr. H. D. Miller, Orkin Exterminating Co., Inc., West Palm Beach, Fla.
28. Mr. Bernard Kolkana, City Health Dept., Jacksonville, Fla.
29. Mr. H. J. Spencer, U. S. Fish & Wildlife Service, Gainesville, Florida.
30. Dr. John T. Creighton, Head, Dept. of Entomology, Univ. of Florida, Gainesville, Fla.
31. Mr. Theodore Oser, Orkin Exterminating Co., Inc., Atlanta, Ga.
32. Mr. Wm. O. Buettner, Secy., National Pest Control Assn., Brooklyn, N. Y.
33. Dr. A. N. Tissot, Florida Experiment Station, Gainesville, Fla.
34. Dr. F. T. Hannaford, Dept. of Agri., Univ. of Florida, Gainesville, Fla.
35. Mr. Myron M. Milligan, Univ. of Fla., Gainesville, Fla.
36. Mr. John C. Symmes, Jr., Univ. of Fla., Gainesville, Fla.
37. Mr. Daniel U. Duncan, Univ. of Florida, Gainesville, Fla.
38. Mr. R. L. Goulding, Jr., Univ. of Fla., Gainesville, Fla.
39. Mr. William B. Gresham, Jr., Univ. of Fla., Gainesville, Fla.
40. Dr. Homer Hixson, Dept. of Entomology, Univ. of Fla., Gainesville, Fla.
41. Dr. H. Harold Hume, Dean, College of Agri., Univ. of Fla., Gainesville, Fla.
42. Mrs. J. P. Walker, Walker Chemical and Exterminating Co., Orlando, Fla.
43. Mrs. F. A. Martin, Orlando, Fla.

In addition to the above, many guests, vistors and wives of members also attended this meeting.



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A delightful time was had by all present at the informal social hour, which was held Thursday evening, January 10th, at the Women's Club, Gainesville, Fla.

The Second Annual Conference was called to order by Dr. John T. Creighton, Head, Department of Entomology, University of Florida, who introduced Dr. H. Harold Hume, Provost for Agriculture, University of Florida. Dr. Hume, welcomed the Pest Control Operators to the University and its facilities. The response and Presidential address was given by Mr. J. P. Walker, President of the Florida Pest Control Association.

The program presented at the Conference follows:

FIRST DAY — Chairman: Dr. John T. Creighton

10:15 A.M. National Trends in Pest Control
Theodore Oser, President, National Pest Control Association, Atlanta, Georgia

10:45 A.M. General Principles of Fumigating, New Fumigants and Methods
Dr. G. H. Chapman, American Cyanamid and Chemical Co., New York, N. Y.

11:15 A.M. Legislation and Insurance in Their Relation to Fumigation Operations
Wm. O. Buettner, Secretary, National Pest Control Assn., Brooklyn, N. Y.

11:45 A.M. Open Forum

12:00 A.M. Secy. and Treas. Report—Florida Pest Control Assn.
Walter A. Helms, Secy-Treas., Jacksonville, Florida

12:15 P.M. Luncheon

AFTERNOON SESSION — Chairman: J. P. Walker, Presiding

2:00 P.M. The Characteristics and Properties of Rodent Poisons and Some Effective Poison Formulae.
H. J. Spencer, U. S. Fish and Wildlife Service, Gainesville, Florida

3:00 P.M. Ratproofing Techniques
Mr. Bernard Kolkana, City Health Dept., Jacksonville, Florida.

3:30 P.M. The Florida Rat Problem as Viewed by the Members of Industry.

4:00 P.M. Informal Discussion on Ticks
Dr. Hixson, Univ. of Florida, Gainesville, Florida.

4:30 P.M. Open Forum — 5:00 P.M. Adjournment

7:30 P.M. Florida Pest Control Operators Association Banquet.

SECOND DAY — Chairman: Mr. J. P. Walker

9:00 A.M.—The Florida Termite Problem as Viewed by Members of the Industry
Mr. T. Oser, Leading Discussion, Atlanta, Georgia

9:30 A.M. Building Construction Analysis
Dr. E. T. Hannaford, Director, School of Architecture and Allied Arts, Univ. of Florida, Gainesville, Fla.

10:00 A.M. Open Forum

10:30 A.M. The Future of The Florida Pest Control Industry
Dr. John T. Creighton, Univ. of Florida, Gainesville, Florida.

11:00 A.M. Business Meeting
a. Report of Committee on Legislation; open discussion
b. Report of Auditing Committee
c. Report of Resolutions Committee
d. Report of Nominating Committee
e. Installation of New Presiding Officer

12:30 A.M. Adjournment

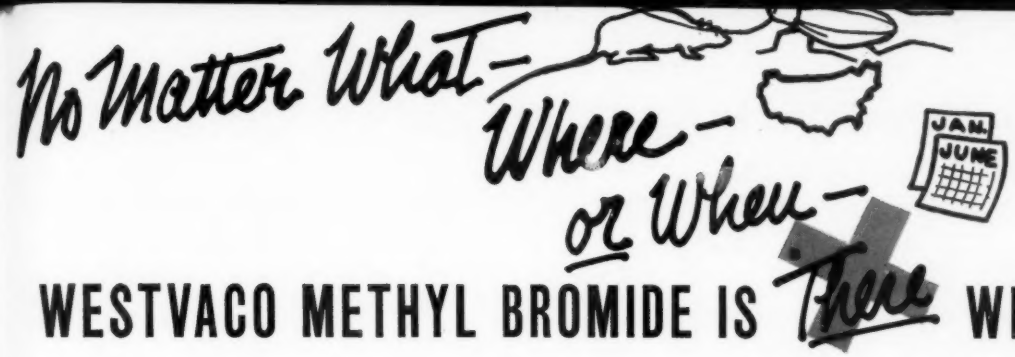
The following officers and directors were re-elected to serve for another term:

President.....Mr. J. P. Walker
Vice President.....Mr. F. deL. Clements
Secretary-Treasurer.....Mr. Walter A. Helms
Directors: Mr. D. R. Barnhart, Mr. W. G. Waldron, Mr. J. M. Roper

The entire membership of the Florida Pest Control Association wishes to express their appreciation and thanks for the valuable assistance given by Dr. John T. Creighton, Mr. Theodore Oser and Mr. Wm. O. Buettner, as well as the University of Florida Faculty Members, who gave splendid cooperation in making our meeting a great success.

Walter A. Helms, Secretary-Treasurer. J. P. Walker, President.

Part of those who attended the Second Annual Meeting of Florida Pest Control Association, held January 10, 11, 12, 1946 at University of Florida. Gainesville, Florida. Picture Courtesy of Mr. Frank Cooper, Editor, Florida Agricultural Extension Service.



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The Future of The Florida Pest Control Industry

By JOHN T. CREIGHTON, *University of Florida, Gainesville*

THE PEST CONTROL INDUSTRY is a youthful addition to Industrial America. This industry has had many of the experiences that have occurred in the evolution of other industries; some of which have been pleasant, while others have been unpleasant.

The most progressive period of growth has taken place during the last ten years. Before that era in Structural Pest Control the public tended to look upon this industry as a racket. Unfortunately many continue to consider all of the industry in the same light. Such a public attitude is the direct concern of all who are interested in the future development of this service.

Florida has been slower to recognize the need for improvement than some other regions of the nation. Now we are all sensing our responsibilities in this regard and it behooves us to attempt to visualize how improvements can be made.

Improvement of Service

Education.—The early structural pest control operator was one with little or no knowledge of those subjects that are so essential to legitimate success in this relatively new field of human endeavor. Such ignorance was, and is reflected in the type of services rendered. Continued mental sluggishness must not be tolerated.

Education may be gained in several ways. It may be of a formal character such as scholastic training, or specialized adult education. On the other hand it may be quite informal in character and consist of securing pertinent literature relative to the problems which are handled daily. There is no excuse for ignorance under modern methods of information release.

In the immediate future many young, well trained men and women will go from their college period of life directly into the structural pest control field. This is as it should be, and as it has been in the development of most successful professions. These young people will have fundamental training in the zoological, physical, and botanical sciences. They will have specialized training in economic zoology, entomology, and chemistry. They will carry a mental vigor into this profession that can only have a stimulating influence. In due time they will assume the mantle of responsibility from the older workers who were not privileged to enjoy such formal training. These older workers can make up for present deficiencies by proper study and observations.

Research.—The very foundation of modern advancement is scientific research. The data derived from such research can be used in plotting all courses of human advancement.

This tremendous dependency upon research occurs in the pest control field as it does in all others. Therefore, it behooves all members of this industry to encourage research in all fields, and especially in their own specialized field. The National Pest Control Association has taken a great step forward in fostering such investigational work. Regional and state groups should likewise encourage regional studies when they are needed.

The mere encouragement of research is not sufficient. We must constantly endeavor to make worthwhile use of information that is available. In fact in some instances our research findings are not properly employed.

Public Relations.—Next to sound education and research the relationships that exist between the operator and the public are the most important factors in the successful future of pest control. A satisfied customer is the best advertisement that is possible. There have been too many dissatisfied customers in the Florida area. In great part this has been due to "fly-by-night" operators; and ignorance on the part of honest operators. The future of the industry in Florida will depend in part upon a concerted effort to break the shackles of lack of faith now held by many of the citizenry.

Establishment of Standards.—The public's faith in Structural Pest Control Operations may be enhanced materially by the establishment of definite standards for the several services that are rendered. This will enable the people to better evaluate the work that has been performed. The primary objective must always be to render satisfactory service; and service that may be visually recognized as beneficial to the community in which you operate.

Business Ethics.—In all human relationships there are ethical and unethical procedures which may be followed. There is nothing of lasting value to be gained by unethical procedures.

For true advancement to occur in the Florida industry it is essential that ethical procedures be followed in all advertising, in relationships between the operator and the client, and between competitive operators. In some instances advertisements have been seen that were very much on the border line. Such high pressure procedures should be avoided. The ethical operator should work with and not against the unethical operator in a conscientious effort to bring about a change of attitude. If this is found to be impossible then legal procedures should be employed to purge our state from such business rackets.

Legislation.—The logical legal procedure for correcting pest control rackets that cannot be corrected through education and cooperation is the passage of a statewide law which would work toward the desirable evolution of the industry.

Florida's Pest Control Industry has been granted a period of two years in which to aid in the formulation of desirable legislation. It is to be hoped that members of this industry will not be negligent in their efforts in this regard. A definite law will be passed during the 1947 session of our legislature. Opposition merely for oppositions sake must not be the program of this association. Rather the sponsoring of such legislation would be one of the most progressive moves that you could make. This along with education would aid you in establishing an ethical Florida Pest Control Industry.

Such efforts towards improvement as have been outlined would result in an increased demand by the public for your services. Such services could be expanded in every town and city. Your structural and household pest control activities could be greatly expanded into the plant pest and cattle pest control field. Your aid to your community as a scientific consultant would be an essential part of community advancement.

Many vistas of opportunity are not realized at present because of weaknesses. Let us correct these as we advance forward.

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Joint Meeting, North Central States Entomologists Branch of The American Association of Economic Entomologists and Entomological Society of America, in Conjunction with A.A.A.S.

Dates—March 27-29, 1946.

Place of Program Meeting—Jefferson Hotel, St. Louis, Missouri.

Hotel Reservations—Send reservations as early as possible to Housing Bureau, 910 Syndicate Trust Building, St. Louis 1, Missouri. State that you are attending the A.A.A.S. meetings, section on Entomology, with headquarters in the Jefferson Hotel. State time of arrival and departure.

PROGRAM

Wednesday, March 27.

Afternoon. (Special Conferences to be held in conjunction with North Central States Entomologists Branch.)

1. State Apiarist Conference—R. L. Parker.....Pvt. Dng. 2
2. The adaptation of the airplane for distributing insecticides and fungicides—William G. Bradley..Pvt. Dng. 7
3. Entomology Extension Conference—M. P. Jones..Pvt. Dng. 8

Thursday, March 28.

Morning. (General Session).....Crystal Room

Lyle, President of the American Association of Economic

1. Greeting from the National Societies and Remarks by Clay Entomologists and James A. G. Rehn, President of the Entomological Society of America.
2. The History, Organization and Activities of the Insect Control Committee of the Office of Scientific Research and Development—Clyde Kearns*.
3. The Outlook of Entomology in the National Science Foundation. Discussion from the floor.
4. Summary of Insect Conditions for 1945 and the Outlook for 1946—P. N. Annand.
5. Appointment of committees.

Afternoon. (Sectional Meetings.)

1. Types of machines and equipment other than the airplane for applying insecticides, and summary of the airplane conference .....Pvt. Dng. 2
2. Household insects, insects attacking man and animals .....Pvt. Dng. 3
3. Insects of the greenhouse, ornamental and shade trees .....Pvt. Dng. 4

Friday, March 29.

Morning. (General Session).....Gold Room

1. The Place of DDT as an Insecticide with Special Reference to Agriculture—S. A. Rohwer.
2. The Toxicology of DDT.
3. Hazards, limitations, and problems involved in the use of DDT. Discussion from floor led by chairman.
4. A report on new insecticides other than DDT.
5. Reports from other conferences.
6. Short business session.

Afternoon. (Sectional Meetings.)

1. The chemistry and toxicology of insecticides.....Pvt. Dng. 2
2. Insects attacking truck and fruit crops and their control .....Pvt. Dng. 7
3. Insects attacking field crops and their control.....Pvt. Dng. 8

*MEMORANDUM ON PROGRAM OF GENERAL SESSION, THURSDAY, MARCH 28

As you know, legislation has been proposed to the Congress which would establish through federal funds an agency to financially suport and encourage various types of scientific research. This proposal has taken the form of Senate Bill 1720, (Science, Vol. 103, No. 2663, pages 39-44, January 11, 1946). It is assumed that the organization created to administer the functions of a "national research foundation" will in many respects be similar to the war agency, Office of Scientific Research and Development, and will, as the latter did, support some work in the various phases of entomology. If these assumptions are correct, then it would seem desirable for entomologists to examine the organization created in O.S.R.D. (later transferred to the National Research Council) to administer their efforts in the suport of research on insect control problems which are important to the armed services.

The O.S.R.D. was required to operate under the security measures enacted by the armed forces during the war and as a consequence most entomologists are unaware of its activities in the field of entomology. Many of us feel that the impending probability of the establishment of a peacetime counterpart of O.S.R.D. makes it imperative that we acquaint ourselves with the wartime entomological activities of this organization as a basis for judging the probable role of entomologists in this program. In trying to fill the need for information in this respect we have scheduled the subject, "The History, Organization and Activities of the Insect Control Committee of O.S.R.D.," for the joint session of the morning of March 28. We have asked Clyde Kearns, Chairman of the O.S.R.D. sub-committee on Entomology, to present this part of the program and have allotted a liberal amount of time for subsequent discussion in which we hope you will take part.

Committee on Program,
North Central States Entomologists Branch
M. D. Farrar, Secretary.

Saipan Shows Danger in DDT

Improperly used, DDT "might actually prove more devastating to man's economy than the atomic bomb," C. H. Curran, associate curator of the department of insects and spiders of the American Museum of Natural History, warns in the Natural History magazine for November. Admitting its effectiveness against many pests, he writes that it is not ready for outdoor use and describes some results of widespread spraying on Saipan and Okinawa.

DDT is especially effective against all soft-bodied insects, least effective against hard-bodied ones. Caterpillars are readily killed by it, but adult beetles are difficult to kill. Flies, including mosquitoes, are among the most vulnerable, but we should remember that of the approximately 25,000 different kinds of flies found in the United States more than 24,500 are either beneficial or at least known to be harmless. A very large percentage of them pollinate flowers; another substantial percentage prey upon injurious insects; while a huge group is parasitic on caterpillars, beetles, sawflies, bugs, and so on. Certain groups of flies feed on mites and other tiny creatures, and mites are not easily killed by DDT. Of course, bees and wasps are also killed, but some of them are fairly resistant and practically all of them will stand heavier dosages than the more delicate flies.

It is obvious that the general use of DDT might very quickly upset the balance of nature by destroying the pollinators as well as by eliminating the parasites and predators that are chiefly responsible for keeping potential insect pests in check. It would be bad enough to eliminate our flowering plants by doing away with the insects that pollinate them, but there are indications that the effects go far beyond that.

There were stories to the effect that the island of Saipan (it was not named at the time) had been sprayed with DDT to eliminate malarial mosquitoes before our troops landed. Actually, the spraying had nothing to do with malaria control because the disease has never been known to exist on Saipan or adjacent islands. But it is true that the island was sprayed—many times.

Pest mosquitoes were present, and so were hordes of greenbottle flies belonging to the genus **Chrysomya.** These had proved difficult to kill. They bred everywhere—in garbage, dead bodies, latrines, etc.—and they were caught in traps by the bushel each day. It was chiefly against these that DDT was used. Today, according to information already furnished me, Saipan island is approaching a condition of devastation. My informant stated that there was scarcely a living thing on it. No birds, no mammals, no insects, except a few flies, and the plant life was decreasing.

It seems possible that the same may happen on the island of Okinawa. On September 16 I received a letter from an officer informing me that the insects were being kept pretty well under control by DDT, adding that chickens had died as a result of having eaten insects killed by it. The symptoms were similar to strychnine poisoning. He further added that some natives who had used DDT as baking powder had died, and that post-mortems showed nerve lesions.

In America the manner in which thousands of birds were killed as a result of spraying or dusting with DDT has been debated. The fact that chickens die from eating insects killed by it seems to give the answer. Some of us had imagined that inhalation of the spray or dust might have been responsible, but none of the experiments that have come to our notice show damage to warm-blooded animals except when the material was ingested or injected.

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Entomology and The Pest Control Industry*

By C. R. TWINN, *Ottawa, Ont.*

Address given at the Annual Banquet, Eastern Pest Control Operators Conference, Amherst, Mass., February 5, 1946.

AS AN ENTOMOLOGIST of the Canadian Department of Agriculture and an Honorary Member of the Canadian Pest Control Operators Association I bring you greetings, and thank you for the honour you have done me in inviting me to attend your meetings and to address this gathering.

At first, on receiving the invitation to address you from your excellent Secretary, Bill Buettner, I was somewhat at a loss in choosing a subject that might be of general interest to you that had not already been adequately covered by previous speakers. After some cogitation, I decided that, as pest control operators with an immediate personal interest in at least the practical aspects of an important field of applied entomology, and close associates of entomologists, you might be interested in a few remarks bearing on the history of entomology and the development of pest control as an occupation or profession that is worthy of public esteem. In choosing this subject I have done so with the thought that you may welcome a change in mental diet after a surfeit of DDT and other fruits of recent research, and moreover, that some knowledge of the past may be of value in assisting you to a better appreciation of the place your industry occupies in the scheme of things entomological.

The organized study of insects and insect control from the economic viewpoint known as applied entomology is a comparatively recent development, and the professional economic entomologist is largely a product of the last fourscore years or so. Insects, of course, have been studied over a much longer period than that, but chiefly because of their aesthetic appeal and interest to the collector and systematist.

It was probably the utilization and development of silk and honey that gave man his first interest in insects, although the intimate attentions of lice, fleas, bugs and mosquitoes, and the ravages of such pests as locusts must also have stimulated his curiosity in these small but formidable creatures. However, up to the time of the ancient Greeks there is no record of the existence of any considerable organized body of information about insects. The Israelites, and the ancient Egyptians, of course, were familiar with the commoner useful and troublesome forms, as revealed in the Bible and other early records, and there was doubtless much general, and probably largely inaccurate, information in circulation through the medium of folklore, legend, and story.

Aristotle, the Greek, who lived in the fourth century B.C., and was for a time tutor to Alexander the Great, was a remarkable man and the first scientist of note of whom we have record. He realized that before man could hope to control his own destiny he needed a great deal more accurate knowledge than he possessed about many things. He therefore began the systematic collection of facts nowadays called Science. In his "History of Animals" he made the first attempt to develop a system of insect classification, and because of that has often been referred to as the father of scientific entomology. Although he dealt with only 47 varieties of insects he was looked upon as the greatest authority on insects for nearly two thousand years.

After the fall of the Roman Empire, Europe lapsed into barbarism, there was an eclipse of scientific knowledge and, except for the activities of the Christian monastic orders, a period of general mental stagnation that lasted for centuries. The beginnings of an intellectual revival were brought about by the Arab invasion of Western Europe in the seventh and eighth centuries and subsequently Latin translations of Aristotle's writings were circulated among the literate and served as the basis of studies by scientists of the later Middle Ages.

The spread of scientific knowledge and the general renewed interest in Greek culture that took place during the fourteenth and fifteenth centuries, the invention of printing, and the discovery of the New World, gave a tremendous impetus to the study of the natural sciences. Unfortunately, this renewed interest in nature for some time did not extend to insects, and up to the middle of the seventeenth century the number of serious students of entomology in Western Europe was small.

Probably the first work of any significance on entomology to be published in the British Isles was Thomas Mauffet's **Insectorum sive minimorum Animalum Theatrum,** which appeared in 1634. This is reported to consist of one volume illustrated with wood cuts, and to contain the insect lore of the ancients copied from Aristotle, Pliny and others. An English translation of it was published in London by Topsell in 1658.

Many popular misconceptions about insects were current in early times. A small sample of these may be of interest to you.

An old and apparently popular belief was that honey bees may hive in the carcasses of animals. This may have originated from the Biblical story of Samson finding a swarm of bees and honey in the carcass of a lion. The ancients also thought that the bee was produced in the dead bodies of a sheep or an ox. Kipling wrote a rather amusing poem called **The Bees and the Flies,** describing what happened when a farmer tried to produce a swarm of bees from a dead bull in accordance with the ancient formula. Whatever was wrong with the method, the farmer got no bees, but succeeding only in raising a foul stench and a host of maggots and buzzing flies.

It used to be thought, too, that the smaller living creatures were produced by spontaneous generation, and this was used as an argument by the alchemists to justify their fruitless efforts to find a means of transmuting base metals into gold, namely, "that if animals are transmuted so may metals" be. Regarding clothes moths control, the Roman Pliny recorded that clothes placed upon a coffin are safe from moths, and, during the Middle Ages, it was believed that clothes wrapped in a lion's skin would remain free from damage. Of course, neither of these ancient superstitions would bear scientific investigation.

It was not until the latter part of the seventeenth century that students began to make original observations in insects, instead of slavishly copying ancient authorities, but from then on great advances were made. At this time the Italian, Francesco Redi, completely disproved experimentally the old and widely held belief in spontaneous generation, and Malpighi of Italy, and Swammerdam and Leeuwenhoek of Holland, did original work on the anatomy of insects. During this period the workers in entomology and the papers they published became increasingly numerous. An outstanding worker of the period was the Englishman, John Ray, whose work in systematizing entomological knowledge is believed to have considerably influenced Linnaeus. One of the foremost entomologists of the early eighteenth century was the Frenchman, Reaumur, who published many studies in insect anatomy and physiology, and original observations on the life-histories and habits of insects, which are valuable to this day.

In 1758, the Swedish naturalist Linnaeus published the Tenth Edition of the **Systema Naturae** in which the binomial system (genus and species) of nomenclature was adopted. Linnaeus' inspired work opened up to students an almost virgin field of interesting study and discovery. The number of workers in entomology rapidly increased and many popular works on insects were printed, and helped to provide a good foundation for a rapid expansion of the science. The work of collecting and describing new species was taken up with enthusiasm, especially by the professional classes, notably teachers, physicians and clergymen. These workers largely concerned themselves with the adult forms, but the description and classification of species and the establishment of named insect collections was invaluable, and an essential preliminary to the successful development of economic or applied entomology, which has to do with the life-histories, biology and control of insect pests.

The first popular work on insects in English was published in London in 1815. This was the informative and entertaining "Introduction to Entomology" by Kirby and Spence, which went through seven editions over a period of forty years, and has been an inspiration to large numbers of people interested in insect life both in England and America.

In Europe, great progress in the study of insects was made during the nineteenth century, but in America it got away to a slow start, and early interest in the vast American insect fauna was largely confined to visiting entomologists and naturalists from Europe and the British Isles. Weiss has written an interesting account of the early history of entomology on this continent under the title of "The Pioneer Century of American Entomology". Early references to insects of concern to the PCO

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are to be found in "An Account of Two Voyages to New England, Made During the Years 1638, 1663". The author, John Josslyn, an Englishman who visited Scarborough and Boston, Maine, in the seventeenth century, recorded the presence there of red and black ants, bedbugs, a dermestid beetle that bred in skins and furs, and blood-thirsty blackflies and mosquitoes.

In 1723, Dr. John Brickell published in Dublin "The Natural History of North Carolina", in which he mentioned the presence of clothes moths, bedbugs, cockroaches, fleas and lice, among other species, and ascribed medicinal value to some of them. Weiss quotes some interesting items from Brickell's book relating to these species.

As an indication of the status of economic entomology in America at the beginning of the nineteenth century, Weiss also gives a number of extracts from "The Domestic Encyclopaedia" published in Philadelphia in 1803 by A. F. M. Willich, M.D. This author stated that to control ants: "A small quantity of human faeces, when placed in their hills, will not only destroy great numbers, but expel the rest from their habitations." For bedbugs, the remedy proposed was more practical and involved the anointing of beds and other furniture with ½ oz. of camphor in ½ pint of spirits of wine or turpentine.

The control of the common house cricket "which delights in new built houses" was effected by trapping them in phials half full of beer placed near their holes. As to cockroaches, of which Dr. Willich, for some reason or other, considered **Blatta orientalis** the most remarkable: "These insects are frequently found in America; they penetrate chests, drawers, etc. and do considerable injury to clothes." Then he obviously confuses the cockroach with the bedbug by adding: "They seldom appear till night, when they infest beds, and bite very severely, leaving an unpleasant smell"!

Here is what might be considered an old time preventive or cure for crab lice, referred to under the French name of "morpion". It appeared in William Byrd's "History of the Dividing Line betwixt Virginia and North Carolina" which Weiss states was written probably in 1738 and published nearly a century later. The author records that, to cure deer skins:

"The Indians dress them with Deer's Brains, and so do the English here by their example. For Expedition's Sake they often Stretch their Skins over Smoak in order to dry them, which makes them smell so disagreeably that a Rat must have a good Stomach to gnaw them in that condition; nay, 'tis said, while that Perfume continues in a Pair of Leather Breeches, the person who wears them will be in no Danger of that Villainous little insect the French call Morpion."

Doubtless many people would prefer the insects to wearing such odiferous breeches.

Although it may seem strange in the light of what has since developed, there were (according to Howard in his splendid book "A History of Applied Entomology") as recently as seventy years ago almost no professional entomologists or teachers of entomology in America, and such knowledge of insects as was available was largely the result of the work of amateurs. To quote Howard:

"The American Entomological Society of Philadelphia, and the just-founded Cambridge and Brooklyn Entomological Societies were the only societies of entomologists, and there were no journals except the Canadian Entomologist and Psyche, the organ of the Cambridge society, started in 1874. There were practically no books except Harris' well known "Insects Injurious to Vegetation" and Packard's "Guide to the Study of Insects", and no transactions or proceeding. . . . All this was in sharp contrast to conditions in Europe where there were literally hundreds of books and dozens of entomological societies and probably thousands of collectors."

A tremendous change has occurred during the past seventy years, however, perhaps largely as a result of the great losses caused by insects, so that today the United States probably leads the world in applied entomology. There are now ample facilities for teaching and many flourishing societies of entomologists, and numerous large insect collections have been established. A great deal of research work on insects and insect control has been carried out, especially by the Federal and State Services and to an increasing extent by industry, and many books, monographs and articles reporting the results of this work have been published.

The development of applied entomology in the United States has been more or less paralleled, although on a smaller scale, in Canada, where many of the insect control problems are similar. Dr. Howard has referred to "the most perfect spirit of co-operation" between the Canadian Service and that of the United States, and to the mutual confidence, friendship and unity of purpose of the two services. There is evidence that a similar satisfactory state of affairs is rapidly developing between the pest control industries in the two countries.

An important point to remember is that little progress was made in the science of entomology through the centuries so long as man was content to pass on from generation to generation with incurious mind and without investigation the insect lore of the ancients. The development and adoption of scientific methods of study, and the refusal by scientists to accept any statement as fact regardless of its source unless it could be substantiated by observation and experiment has changed all that. Scientific research is of paramount importance in the modern state and is now supported and encouraged by governments, universities and industry. The number of students who receive training as scientists increases from year to year and there is a constantly expanding demand for their services. As a result great progress has been made, especially since the beginning of the present century, in the acquisition of knowledge about insects and ways and means of dealing with them, and there is every indication that further advances will be made at an accelerating pace.

The literature on insects is now so voluminous that the entomologist working even in a restricted field sometimes finds difficulty in keeping abreast of it, although fortunately his task is much facilitated by the several excellent abstracting and indexing journals such as the Zoological Record, the Review of Applied Entomology, the Indexes to American Economic Entomology, the Experiment Station Record and Biological Abstracts. The Review of Applied Entomology, published by the Imperial Bureau of Entomology in London, is of special value as it includes digests of articles published in many languages and is thus of immense service to English speaking entomologists.

Today applied entomology presents a vast and complex field of study and the entomologist engaged in scientific research perforce must specialize if he is to make a significant contribution. But he also needs the help and co-operation of other workers in his profession and in other branches of science, and in applied fields such as your own, where the value of new methods and materials is submitted to the acid test of practical application.

Team work is an important factor in progress. Workers in various fields of endeavour must work together in harmony to achieve maximum results, a fact that was abundantly demonstrated by science, industry and the armed forces in the winning of the war.

Not so long ago the entomologist was popularly depicted as a bespectacled individual with a long beard and a butterfly net, and regarded as a somewhat ridiculous person engaged in a childish and useless pursuit. This is no longer so, because the economic entomologist has fully demonstrated his value to the community in developing ways and means of preventing or reducing losses caused by insects and of combating insects that cause annoyance or carry disease. I like to think that the entomologist also owes a measure of this growing public esteem to the character and quality of the members of the profesison who, in general, are an unworldly, hard-working lot, keen on their jobs and devoted to public service, although usually receiving small or modest remuneration.

The pest control industry is a branch of applied entomology and an important one, as it deals with the control of insect pests which at one time or another affect the health, comfort or worldly goods of almost everyone. It would be interesting to trace the history of pest control and to read of the lives, activities and experiences of your predecessors in earlier days. A famous example from olden times is the Pied Piper of Hamelin, the legendary pest control operator who lived in Germany in the thirteenth century. According to the legend, he punished the town of Hamelin for not paying him for ridding the municipality of rats by charming the children away into the heart of a mountain from which they never returned. The Pied Piper controlled insects as well as rats, as is shown by his claim to have freed the Cham of Tartary from his huge swarm of gnats.

Like the early entomologist, the PCO has been treated with contempt as a "rat catcher" or a "bug man", and suspected (perhaps not always without justification) of being something of a racketeer. Your Association is still young, but it has already accomplished much in establishing public confidence in your industry, respect for its members, and appreciation of the public service they render.

The objects of the Association as set forth in your Constitution and By-Laws and the code of ethics established for the membership are very laudable, and honestly observed should go a long way towards ensuring your industry a permanent and honorable place in the community.

The fostering of research and the diffusion of knowledge are important objectives. We need to know a great deal more about the common insect pests and their control. The Association is doing valuable work in keeping the members informed of new developments through the medium of its excellent Service Letters

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In closing I would like to say that entomologists and pest control operators have much in common and much to learn from each other. It is to our mutual advantage that we continue to work together for the common purpose of protecting mankind from the insect menace.

*Contribution No. 2399, Division of Entomology, Science Service, Department of Agriculture, Ottawa, Canada.

BIBLIOGRAPHY

Dixey, F. A. "The Beginners of Entomology (Book Review)," Nature, Vol. 123, No. 3112, pp. 935-937, 1929, and Vol. 125, No. 3152, pp. 483-5, 1930.

Howard, L. O. "A History of Applied Entomology", Washington: Smiths. Inst. Publ. 3065, 564 pages, 1930.

Leach, W. E. "Entomology", Edinburgh Encyclopedia, Vol. IX, Pt. 1, 1815.

Marlatt, C. L. "A Brief Historical Survey of the Science of Entomology", Proc. Ent. Soc. Wash. 4:83-120, 1898.

Weiss, H. B. "The Pioneer Century of American Entomology", New Brunswick, N. J., 320 pages (multig.), 1936.

Wells, H. G. "The Pocket History of the World", Pocket Books, Inc., New York, 440 pages, 1942.

Reminiscences of an Old Trapper

By **ROMEYN BERRY**

We got mice. Almost everybody in the country has mice for a while this time of year, as Mr. and Mrs. Mouse talk it over and decide they are getting too old to spend another Tompkins County winter outdoors; that warmer climate is indicated for arthritis and what not.

How do they get in the house? Well, one way is the regular way—through an open door. We've seen two of these big-eared deer mice pop out of the grass and into the kitchen when somebody leaves the door open only long enough to go to the woodshed for a few sticks to finish cooking dinner on.

Traps, we find, are the best way of getting rid of mice. Cats would do equally well, no doubt, but cats are pretty apt to have kittens in the hall closet when you let them in to dispose of the mice and, as between the two, we prefer mice.

Up to now your reporter has always been head trapper at our place and has always done a reasonably satisfactory job as long as we had enough mice to keep Mrs. State and Tioga mad, and our interest in the chase feverish. His tendency, however, has been to let down weakly when all but one or two mice have been captured. It's those last two mice that test the stamina of the trapper. When you've got them down to two you're apt to let down and neglect the trap line, until Mrs. State and Tioga starts sniffing and suggesting that perhaps we'd better take a look at the salt pork down cellar. When that happens we don't worry the least bit about the salt pork, but the minute she goes out to the chicken house we take a quick, birds-eye glance at some of those traps. Two weeks is too long to keep a mouse in a trap. When you've done it, the best thing to do is get a shovel and take the whole business—trap and all—out to the incinerator. That procedure ends all question about the keeping qualities of salt pork.

This fall, however, the Butch has taken over the management of our trapping department and we expect a better showing from now on. He's in the Daniel Boone stage and to him the mice are beaver. Each morning on arising he runs his line of four traps before breakfast, and not yet has he failed to show up at the table with at least one dead and badly mangled beaver to display alongside of his hot buttered toast. One morning there were four beaver and poached eggs for breakfast.

—*From The Ithaca (N. Y.) Journal.*

Thanite as a Control for Ants

By **RALPH H. SMITH**, *University of California at Los Angeles*

IN DECEMBER, 1944, Dr. Hosmer W. Stone, Associate Professor of Chemistry, University of California at Los Angeles, told me of a casual observation he had made with **Thanite** in the control of ants. He sprayed an ant nest with undiluted **Thanite** and found it was highly effective in killing all ants that appeared for a considerable period following the application. Pursuant to the clew as to the possible value of **Thanite** in ant control, I have made numerous simple tests and the results indicate this material may serve a useful purpose in controlling ants of the type that invade houses and are a nuisance on home grounds.

The possible value of **Thanite** is indicated by the following observations: A bit of cotton wrapped to the end of a toothpick was dipped in **Thanite** and the excess liquid removed by smearing the end of the toothpick against the neck of the bottle. The end of the toothpick was then drawn across the path of the ants, depositing a very thin smear of **Thanite** about one-eighth inch wide. Sometimes the hole through which the ants entered the kitchen was circled and sometimes an L-shaped or maze-like line was made across their trail. The ants stopped suddenly at the line and turned back, or raced back and forth along the line. It appeared, however, that eventually all of them, in their distraction or bewilderment, got some of the material on a foot or antenna. Those observed to touch the line became markedly affected, exhibited paralytic effects and died after a few hours. In many tests made, hundreds of dead ants were found the following morning and the invasion of ants had completely disappeared. Undiluted **Thanite** atomized on nests of the Argentine ant, **Iridomyrmex humilis** Mayr., resulted in eliminating all ants for a period of several days. Invasions of ants into houses have invariably been stopped immediately by the atomizer method of application. The ants are markedly affected by the odor of the **Thanite** but lethal action seems to result primarily from the direct contact of the material with the feet or antennae.

Thanite is a product of the Hercules Powder Company, covered by U. S. patent 2,217,611 and is described as secondary terpene alcohol thiocynyl acetate. A 3 per cent solution of **Thanite** in highly refined kerosene has been in use for several years as a spray against household pests such as flies, mosquitoes, bedbugs and silverfish. The killing action results from the spray mist that falls directly upon the body of the insect.—8-28-45.

—*Jour. Econ. Ent., Oct.* 1945, *Vol.* 38, *No.* 5.

Thank You, Mr. Anderson

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The Use of DDT and 1080 in Murine Typhus Control in the Southwest

By R. G. UPTON

IN ANSWER to the question of "why kill rats", nearly everyone knows something of the large amount of food rats consume each year; also that they ruin perhaps ten times as much as they actually eat. Also, they damage buildings, food containers, feed sacks, and sometimes they gnaw holes in lead plumbing pipes. They have also been accused of starting many fires, either by carrying matches or by gnawing the insulation from electric wires, thereby causing short circuits. Murine typhus fever is carried by rats and transmitted to many by the rat flea (Xenopsylla cheopis). A large part of the people of the United States have seen the news reels in which DDT was used to dust natives in Italy and North Africa for louse extermination. These lice carry the epidemic typhus or the European type. News reels have shown the DDT dust being blown down necks and up shirt sleeves and pants legs. The natives of North Africa seem glad of the delousing program. There is one story that a wedding procession was stopped until the military units deloused both the bride and the groom and members of the wedding party, after which the wedding proceeded as usual.

Due to the wide publicity of the European typhus, reliable publications have stated that typhus could not exist without human lice. This statement is true for the European typhus only. In the Southwestern states, Murine typhus is carried by the rat flea, and not by lice. However, the louse-borne typhus is much easier to control because the lice of man do not feed on other animals. With Murine typhus, it is quite the oposite, as far as the ectoparasites are concerned. The rat flea is the carrier, but it is not confined exclusively to rats. After the rats die, their fleas leave them, and bite humans, dogs, cats and other animals. This makes the typhus-carrying flea much harder to eliminate. Even though rat fleas live on other animals, they are much more numerous on rats, therefore, one of the methods of control of Murine typhus is to get rid of rats.

There are many kinds of rats, but two main types are almost universally found wherever men are found. The Norway rat digs in the ground and under foundations of buildings. These rats have shorter tails and more blunt noses and are larger than other types of rats. The second type is called the attic rat, the ship rat or the long-tail rat, of the species **Rattus rattus** or **Rattus alexandrinus.** Both have more slender bodies, long noses, very large ears and long tails which exceed the length of their bodies. These types of rats work mostly above the ground and are found in separate colonies. Both types may be found within the same building, however. The Norway type rat works under buildings, while the alexandrinus likes to climb and find their way into attics, either by climbing up the walls or the outside of buildings, by climbing trees and thence to roofs, or to the extent of crossing streets from one building to another on electric, telephone or antenna wires.

In Texas, thirteen cases of Murine typhus in six separate counties were reported to the State Health Department in 1930. By 1933, 398 cases in 67 counties were reported; by 1942, 1204 cases were reported in 113 counties, and in 1944 the number of cases had grown to 1,740, and were found in 137 different counties. This invasion of typhus into Texas became rather alarming. Rat extermination was not the complete answer because fleas were left in the buildings. When deprived of their rats the fleas bit people and gave them typhus fever.

Since 1942, the use of DDT as the miracle drug has been confined mostly to the protection of the Armed Forces. It was used for the control of nearly all the insect pests encountered in various parts of the world. However, by the beginning of 1945, Murine typhus in Texas had become such a menace to the civilian population, and to the camps of the Armed Forces as well, that large amounts of DDT were released to be used for the typhus control program, through means of the State Health Department.

In April 1945, the typhus control program began the use of DDT supplies in order to exterminate the fleas which were the carriers of typhus to man. Something like fifteen tons of pure DDT has been made up in sprays and used in the counties and cities of Texas wherever the need was the greatest. In addition to typhus control, flies, mosquitoes and other disease carrying insects were also eliminated.

No one can say with certainty how much the use of DDT in fly control was responsible for lowering the rate of poliomyelitis in one of the largest cities of Texas. It is definitely known that the polio virus may be carried by flies, but it is not known how many other ways it may also be carried. It is conservative to say that as a result of the use of large amounts of DDT, the polio cases decreased.

The mixing and administering this spray solution of DDT requires a lot of labor together with machines for mixing and spraying. Something like 30,000 lbs. was used during this phase of typhus control. During this interval, trapping and poisoning of rats was carried on extensively by Federal, State, County and City organizations.

By the advent of August 1945, the use of DDT for elimination of fleas in typhus control was changed from the spray to the dust or powder. In this work, the pure DDT was mixed in 10% amounts with 90% pyrophylite or with Texas talc for dusting in large quantities. It is being used on a much larger scale than the spray. By the end of August, over twenty tons of this 10% DDT had been received in Texas and mostly used. The greater use may be stepped up to several carloads per month before the typhus is completely under control. During the earlier part of this spraying program it was found that rats in the treated areas had practically no fleas at all. In carefully controlled areas it was found that after two months or more, the rats were again being infested with fleas.

During all this time, searches had been made for newer and better rodenticides. Hundreds of chemical compounds were tested by the Office of Scientific Re-

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	77° F.	14° F.	77° F.	14° F.	77° F.	14° F.
AR-50	5½ lbs.	3½ lbs.	66 grams	42 grams	40%	30%
AR-50 SPECIAL	5½ lbs.	3½ lbs.	66 grams	42 grams	40%	30%
AR-60	5½ lbs.	3½ lbs.	66 grams	42 grams	40%	30%
AR-70	5¼ lbs.	3⅛ lbs.	66 grams	42 grams	40%	30%

The VELSICOLS are active toxicants in themselves and when employed to the extent of 30 to 35% give AA Peet-Grady ratings both as to knockdown and percent kill. They are compatible with pyrethrum, and the aliphatic thiocyanates. The high flash points and high boiling ranges of the VELSICOLS reduce fire hazards to a minimum.

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search and Development. To date, the best and most rapid rat poison is known as sodium fluoroacetate and called Number 1080. The discovery of rodentiale values of this chemical began a new drive in the control of typhus. Rats were de-fleaed by dusting the buildings with DDT and then poisoned in large numbers by means of 1080. This chemical was first used in the testing laboratories as a bait poison. It was later found effective when mixed in water in a dilution of ¼ oz. to each gallon. Souffle cups filled with this solution are placed in large numbers in buildings where rats are abundant. In one of our county seats in East Texas, 1080 was used until the town was practically freed of rats. In another small town, where 1080 was put out in a feed store, 130 rats were found dead the following morning, and in one barn in the same town, 70 dead rats were found after the first night of poisoning with 1080.

In a West Texas city where the typhus had reached an alarming stage, four buildings were treated, and 427 rats recovered, with over 200 on the outside of these buildings. Number 1080 is an equally effective poison for mice. In a small city in the typhus area 450 rats and 150 mice were recovered after poisoning.

The formula 1080 is a violent poison for about all the other animals on which it has been used. Presumably it would be highly poisonous to man, therefore, only experienced workers are allowed to use it at present. In one of our Texas towns where 150 rats were recovered, eleven cats also died. The cats did not drink the water in which the 1080 had been placed, because such poisoned water was well protected within the buildings, but they caught and ate the poisoned rats. In one town one dog which must have been feeding on rats also was reported poisoned.

Two small towns in the Central Texas plains were treated for rats with 1080. In one grocery store 93 cops were put out, and 190 dead rats were recovered. In the other town 31 baits were put out, and 28 dead rats were recovered.

In a fair-sized town between Austin and Houston the buildings were treated with 1080, with the results of 308 dead rats, 50 mice, but also five cats and one dog. In this town the question was raised whether rats would take the liquid poison if other water were available. Therefore the 1080 water solution was put out on a rainy night with water standing in the streets and alleys. This seemed to have no effect on the number of rats drinking the 1080 solution. Others have reported that rats take the 1080 solution from the souffle cups when leaking hydrants and plumbing defects are close by.

In a smaller town 73 rats and 20 mice were recovered and no other animal deaths reported. In a nearby town the report on the result of 1080 included 319 rats and 80 mice poisoned, but also added to this list were reported the deaths of seven cats, one dog, two opossums and one pigeon. One of the workers saw the pigeon drink from the souffle cup, which resulted in its almost immediate death.

In the issue of **Science** for August 31, 1945, E. R. Kalmback reports that from one-tenth to five milligrams of 1080 per kilogram is a lethal dose for various types of rats, likewise prairie dogs and also domestic dogs. This article also states that "As a matter of fact, this material exposed as a water solution has given results in rat control, in the Southern States, seldom if ever matched in thoroughness by previously used poisons and other control methods."

Of course, caution must be exercised where such a violent poison is used. The personnel who use this chemical must have special training in the responsibility of using this poison. 1080 is manufactured on a limited scale and is not available to the public, and due to its nature, may never be released to the general public. It is agreed that the usefulness of this poison in rat control is the best effort which has been put forth to date, and that its discovery and use more than compensate for the vast amount of work done on the other hundreds of compounds suggested for rodenticides, but which were not found equal to this chemical sodium fluoroacetate, which is commonly designated as Number 1080.

—Calendar of Meetings—

Secretaries of Pest Control Associations, as well as others planning meetings of pest control interest, are invited to send date and place of such meetings for listing in this column. To insure maximum publicity in advance of the meeting, such information should be sent at the earliest possible time.

Michigan Pest Control Operators' Association Annual Short Course Meeting, Michigan State College, East Lansing, Mich., March 13 and 14, 1946.

Rutgers Short Course, Rutgers University, New Brunswick, N. J., March 25, 26, 27 and 28, 1946. Primarily for New Jersey PCO's; attendance limited. For details, write Abe Charnack, secretary, New Jersey Pest Control Association, 252 Chancellor Avenue, Newark, N. J.

Joint Meeting, North Central States Entomologists Branch AAEE and Entomological Society of America, March 27, 28, 29, Hotel Jefferson, St. Louis, Mo. For hotel accommodations write Housing Bureau, 910 Syndicate Trust Bldg., St. Louis 1, Mo.

Northern California Pest Control Association, Inc. (quarterly meeting), Sacramento, Calif., in April. W. B. Fortna, Santa Rosa, Calif., is local chairman.

National Sanitary Supply Association (23rd annual convention), May 26-29. Booths for display purposes. Leo. J. Kelly, executive secretary, 139 N. Clark St., Chicago 2, Ill.

National Association of Insecticide & Disinfectant Manufacturers, 32d annual mid-year meeting, French Lick Springs, Ind., June 17, 18 and 19.

Construction Industries Exposition and Home Show, Pan Pacific Auditorium, Los Angeles, Calif., July 12 to 21, 1946. Applications for booths may be made to D. D. Durr, c/o Tabery Corp., 3443 S. Hill Street, Los Angeles 7.

National Pest Control Association (14th Annual Convention), Roosevelt Hotel, New Orleans, La., October 28, 29, 30, 1946, (Tentative).

American Public Health Association (annual meeting), Cleveland, Ohio, week of November 11, 1946. Exhibits will be featured. Willimina Rayne Walsh, Associate Secretary, 1790 Broadway, New York 19, N. Y.

National Association of Insecticide and Disinfectant Manufacturers, 33rd annual meeting, Hotel Commodore, N. Y., December 2, 3, 4 (tentative).

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DU PONT "ANTU" RODENTICIDE
(*Alphanapthylthiourea*)

By E. H. RIEMAN, *Grasselli Chemicals Dept., DuPont, Wilmington, Del.*

THE SECURITY restrictions prohibiting the earlier disclosure of "Antu" (alphanapthylthiourea) have now been rescinded and particulars concerning this important discovery can be released. Commercial production of "Antu" is in progress and supplies are available for immediate shipment.

The value of "Antu" as a rodenticide was discovered by Dr. Curt P. Richter of the Johns Hopkins University, Baltimore, Maryland. Subsequent laboratory and field tests by Dr. Richter in collaboration with the Office of Scientific Research and Development and concurrent tests by the Wildlife Research Laboratory of the United States Department of Interior—Fish and Wildlife Service —further confirmed the efficacy of "Antu".

"Antu" is characterized by such low solubility that it is tasteless to rats, yet its lethal action is swift and certain when as little as 2.0 mg/kg is ingested. It appears to be a selective rodenticide, but is **specific** against the Norway or Brown rat (Rattus norvegicus) which is the predominating and principal disease-carrying type in the United States. "Antu" is also suggested for trial to control Alexandrine or Black rats (Rattus rattus rattus). However, higher doses apear necessary than those given above and it must be administered accordingly. It also has a toxic effect on other omnivorous and carnivorous rats and an animals capable of regurgitation. It is not recommended for herbivorous species. The low lethal dose necessary with "Antu" is a distinct advantage because conventional rodenticides usually require substantially higher doses with the proportionate difficulty of inducing rodents to consume these larger amounts. "Antu" is administered in conventional baits, by dusting, or in water.

Directions for Use

(a) Sprinkle on ground corn or other grains, meats, cut apples, melons, sweet potatoes, chicken or turkey heads and similar baits. Scatter the bait evenly in a **thin** layer over the floor or ground. Follow by dusting "Antu" over the bait and the surrounding floor or ground. The bait should have a faintly gray appearance after dusting.

(b) Dust heavily in rat burrows with a dust gun.

(c) Mix with flour (15-25%) and spread on runways.

(d) Dust on floor of closed rooms or cellars.

(e) In a 5-10% suspension in water. Mix "Antu" with water and place the suspension in small dishes where the rats come for water. This is useful where rats have only a limited supply of water. Thirst is a more powerful drive than hunger and in localities where the supply of water is limited, water application usually gives good results.

(f) Mix with finely ground grain (2-5%) well mixed, preferably by machine.

"Antu" is a "slow acting" rodenticide. The principal cause of death is by plural effusion, the animal drowning in its own body fluid. Tolerance to "Antu" poisoning develops if administered in sublethal doses. However, this tolerance is lost if the poison is not repeated within thirty days. The practical significance of this is that to achieve good results a surely lethal dose must be administered with the first feeding. When "Antu" is added to bait at the rate of 5% by weight, one gram of bait contains 50 mg. of "Antu" or a dose sufficient to kill Norway rats of any age or sex.

Young rats are usually more resistant to poisons than those reaching maturity. "Antu" administered to young, wild Norway rats shows them to be up to seven times as resistant as mature rats of the same species. The domestic species are less tolerant and can be destroyed with lower doses. No sex variation was found, either in young or mature rats. Observations have shown that rats usually eat at least one gram during the first feeding period which is more than twenty lethal doses, consequently at 5%, the margin of safety for effective killing is assumed adequate, irrespective of their age and stage of development.

Excellent information concerning the preparation and use of bait can be found in United States Department of Interior, Fish and Wildlife Service, Conservation Bulletin No. 8 entitled "Rat Control".

Without effective rodenticides and proper knowledge of their use, the spread of typhus and other rat-borne plagues could soon become rampant. Propagation is rapid and an unmolested lineage can reach the astounding total of several million progeny within three years' time. "Antu" has produced outstanding results as a specific against the most prevalent and troublesome species (Rattus norvegicus) and exterminators concerned with rodent control, particularly where these species predominate, will find it a particulraly desirable rodenticide for their use.

Packages

"Antu" is now obtainable in packages containing 100 lbs., 25 lbs. and 10 lbs. net.

Unit of Measure

To transpose to avoirdupois weight the following is given for ready reference:

Mg. (Milligram)	.001 gram
G. (Gram)	1000. milligrams (0.3527 oz.)
Kg. (Kilogram)	1000. grams (2.2046 lb.)

The doses mentioned in the memorandum are expressed in the metric system; i.e., milligram, gram and kilogram. Mg/kg refers to milligrams of "Antu" ingested per kilogram of the animal's body weight.

Warning

Du Pont "Antu" Rodenticide is a POISON. If SWALLOWED, call a physician. Cause vomiting with mixture of salt, soap or mustard in warm water.

Du Pont "Antu" has been handled extensively without ill effects, but precautions to avoid inhaling exces-

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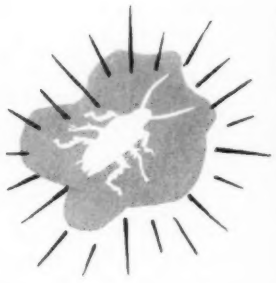

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sive amounts of the powder are advised. It does not affect the skin and is not absorbed by the skin. It does not appear to lose its toxicity when stored dry. Du Pont "Antu" is toxic to humans, dogs, cats and other pets. For this reason, full warning must be given to the inhabitants of buildings and owners of pets before the poison is used on the premises. It appears less dangerous than most rodenticides, nonetheless, caution in preparation, handling and aplication is advised.

Notice to Buyer

SELLER makes no warranty of any kind, expressed or implied, concerning the use of this product. BUYER assumes all risk of use or handling whether in accordance with directions or not.

NEW ORLEANS

The following is the first of a number of articles on NPCA's 1946 Convention City.

ONE DOES NOT HAVE to be in New Orleans for long before realizing that the usual course of growth of the American city, a trend towards a definite standardization that results in a marked similarity among all of them from the smallest to the largest, has not taken place there in the same degree that it has elsewhere. The first impression of the visitor is that in New Orleans he has discovered something unique. It may be that he finds this something difficult to grasp in its entirety for it is not due altogether to the fact that the architecture of several sections of the city is quite unique, or the sharp contrast of these sections with the modern city, or even that the mode of living of the inhabitants, their philosophy of tolerance, a live and let live outlook on life, is different.

Whatever the reason, or reasoins, they go back to the very early days of the city, during the French and Spanish regimes, when those races implanted on the young city a personality altogether different than did the Puritans in New England, the Dutch in New York, the Quakers in Pennsylvania or the Huguenots along the south Atlantic coast. Not only did they find and develop a city that from a physical standpoint was to be hardly matched in what is now the United States, but they also gave to it a collective temperament that was very much antithetic to that found in the rest of the country generally. New Orleans has been an American city for over a hundred and thirty-five years, but it was a Latin city for nearly a hundred years before that and it should be remembered that it is still one in a large measure in architecture, in government, in people and in spirit.

The Latin influence, of course, is most evident in the Vieux Carre, or as it is popularly known, the French Quarter. To many, New Orleans and the Quarter are practically synonomous yet this viewpoint is not altogether correct even though the Quarter does contribute to a very large degree to the charm of the city as a whole. There is no other section, it is true, with the possible exception of the Garden District, in which New Orleans' distinctiveness is had in such concentrated form, for within the comparatively small area which it encompasses is all the romance and picturesqueness that can be desired of an ancient civilization, ancient, that is, as far as American cities are concerned.

There one can capture all the old world atmosphere of early New Orleans, very much as it was at the turn of the nineteenth century when the French handed over the vast territory of Louisiana to the young American republic. The straight, narrow streets lined with structures of a strange architecture, the delicate wrought and cast-iron traceries which adorn the balconies hanging over the sidewalks, the mysterious looking alleys and passageways and the strange, pungent odors in the neighborhood of the famous French Market, all of these and more contribute to a strange, exotic setting, fascinating not only to the visitor, but strangely enough even to the native.

Undoubtedly, the most interesting part of the French Quarter is in the vicinity of Jackson Square, the old Place d'Armes, the name of which was changed in 1849 because an influential old lady, the baroness Pontalba, included General Jackson among her heroes. At any rate, the Square was at one time the heart of the old city and around it were grouped, in accordance with the plans of Adrian de Pauger in 1728, several of the most important buildings of the original city. As was natural, in or near this square took place most of the city's important historical events, notably the consummation in 1803 of the Louisiana Purchase that was the turning point not only in the history of New Orleans but of the United States.

Jackson Square is by no means the only point of interest in the French Quarter, although it is the focal one. With the exception of certain sections along the fringes which have been commercialized and one or two others in which residences have been constructed in comparatively recent times, the entire Quarter is pregnant with romantic traditions, picturesque architecture and colorful atmosphere. Strolling along one of its narrow streets one comes across an odd, plantation type home known as Madame John's Legacy famous for being the oldest residence in the Mississippi Valley. Vieing with it in age, is the Ursuline Convent, begun prior to 1727 but not believed to have been completed until 1734. Throughout the original city are many buildings, none quite as ancient as those two, of course, which are exceedingly interesting not only because of their age but also because they are constructed in a style not seen anywhere else, reminiscent of old Spain and old France. It is interesting to note that when churches, theatres, residences and public buildings were finally permanently constructed, they were of an architecture combining features of that of France and Spain, modified to a certain extent by local climatic and topographic conditions, and thus were, in reality, in the style of a well-advanced civilization, transplanted in the New World.

When the Americans came in 1803 New Orleans, then, was an established cosmopolitan city with a fairly advanced civilization, in tone a miniature Parish. Simultaneously with the beginning of the American domination and the opening of the Mississippi Valley New Orleans experienced an abrupt change—in commerce, government, population and mode of living. Along with the astounding growth that took place within the next two generations, a development that reached its climax in the decade before the Civil War when it was one of the two or three leading cities in the United States, a great many physical changes took place.

As was to be expected a conflict immediately arose between the original Latin inhabitants of the city and the new American settlers. This tragic-comic feud influenced the city's development to an appreciable degree, for no sooner did the Americans realize that they were being ostrasized than they moved across Canal Street with their shops and homes and founded what was almost a different city.

Prescription for Termites

Rx Permatox "A"

Write for Bulletin 45-T

PERMATOX "A" is an effective WOOD PRESERVATIVE and SOIL POISON. It controls decay, dry rot and the attack of termites.

In treating lumber, poles, posts and millwork, it is applied by spraying, dipping or soaking. Wood treated with PERMATOX "A" is clean, non-bleeding, paintable and easily handled.

For subterranean termites, by far the most common type, which work through the soil to damage unprotected wood construction, use PERMATOX "A" as a soil poison to provide a chemical barrier around walls, pipes, foundations, steps and porches. Also treat all sills, timbers and wood supports with PERMATOX "A" to guard against termite attack as well as decay and dry rot.

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PERMATOX "A" when used as a soil poison provides a chemical barrier against termite entry to the wooden structure.

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TIME PROVED!

A large volume Termite Control Operator recently wrote us,

"Used your chemical since August, 1941, with an almost 100% efficiency . . . proud of results."

This is just one out of the many unsolicited letters we are constantly receiving proving the effectiveness of "TOX-EOL."

"TOX-EOL"

Toxic base is chlorinated phenol plus. Is economical and not unpleasant to use. Effective for both wood and soil poisoning. Present cost less than creosote. Shipped in a highly CONCENTRATED liquid saving transportation charges.

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CRE-O-TOX CHEMICAL COMPANY

Pioneers in the use of Chlorinated Phenols for termite control.

Now located in our new plant:
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Since that time the city has expanded considerably in all directions, in fact to such an extent that it is in area the fourth largest city in the country. But, remaining from the period in which the Americans and Creoles made faces at one another, although it should be noted that their social antipathies did not prevent them from cooperating, as a rule, in things relating to the good of the community, is a beautiful section of the city called the Garden District which many consider equal to the French Quarter in charm, certainly the fine residences found there are more elaborate and substantial if not as quaint.

The District really dates from 1816 when the plantation of Francois Livaudais was inundated by the floodwaters pouring in from one of the last crevasses in a New Orleans levee with the result that his land was, to his dismay, covered with a fine river sand to a depth in some places of three feet. While ruefully surveying the effects of the disastrous flood he was approached by some land speculators who wished to subdivide the plantation into residential plots since, it seems, the added elevation and the poreousness of the sand made it easily drained and very desirable for a residential section. Livaudais agreed, and the Garden District came into existence.

To the visitor, the modern city, with its wide streets and avenues, its spacious residences, its unsurpassed parks, its miles of docks, its great industrial plant, its fine shops and excellent restaurants, is a source of interest that, in a way, matches the charm of the older aspects of the town, especially as the sharp contrast of the two seems to heighten the attractiveness of each. New Orleans is extremely fortunate that it has both the old and the new, for a place in which the old predominates, gives off an appearance of decay, of lassitude and lack of a proper feeling for progress on the part of the inhabitants; and one in which the new has all the ascendancy, in America at least, appears immature, standardized, has no individuality of its own. New Orleans has a tempered, seasoned appearance that holds a peculiar appeal for the visitor.

It is an astonishing sensation, a never-ending wonder to visitors to walk through the streets of the old Quarter, to gaze at the ancient buildings their delicate iron work gracing the sagging balconies, to study the angular shadows formed by the irregular structures on the narrow streets, to smell the strange, exotic odors, to look at the quaint architecture, the foreign-looking people, the shaded patios with drooping banana trees and then by merely crossing Canal Street to find himself in an entirely new world, one of hustle and bustle, of modern stores and skyscrapers—it is an experience not to be forgotten, one not felt anywhere else in the country.

Modern New Orleans is in many ways, as interesting as the old. There are few things more fascinating than a drive along the miles of docks and wharves where one can see the lifeblood of the city, the port, the basis of the city's prosperity. Nearly a billion dollars of commerce moves over the sides of the ships that come to New Orleans from all the ports of the world—cotton, coffee, sugar, bananas, raw materials and innumerable other commodities—and it is handled with the most modern machinery, the intricate operations of which are highly interesting to watch. The port and harbor improvements are valued at over $200,000,000 and include the world's largest cotton warehouse and coffee and banana terminals. The city serves as the air hub of the Americas.

New Orleans is almost bisected by Canal Street, the widest and most beautiful business thoroughfare in the country. Three and a half miles in length the sixteen blocks that run through the business district, both sidewalks and neutral ground, are paved with terrazo marble, and the street is lined with tall, artistic light standards each bearing three pear-shaped globes that give an extremely efficient street illumination system. Canal Street is a street of retail and department stores as well as theatres and hotels.

There is no need for a dull moment in this city as one will readily find when he comes here. Within the 200 square miles that is New Orleans, from the beautiful lakefront to the great curving river, are innumerable points of interest, modern and ancient, that emphatically explain why New Orleans is so widely known as America's Most Interesting City.

Rutgers "Short Course"

Rutgers University, New Brunswick, New Jersey, in co-operation with the New Jersey Pest Control Association, Inc. will sponsor a Short Course in Rodent and Termite Control on March 25-26-27-28.

This course will consist of a minimum of theories and a maximum of practical control measures and practices. Wherever possible the theories expounded will be put into practice during the course. The studies will not be confined to classroom work but will include the actual servicing of rat jobs. A rat infested building will be used and the students, under the guidance of the instructors, will make a survey and then prescribe the necessary measures for the rat control and rat proofing work. This will be followed by the actual servicing and the results will then be tabulated. Similar procedure will be followed in a termite session. A termite infested building will be surveyed, steps for the elimination or control of termites will be decided upon, and the plan for the control work will be carried out.

The course has been geared to allow sufficient time for student discussions so that a real clinic procedure will be possible. The instructors for this course are as follows:

Mr. Ernest M. Mills, U. S. Fish and Wildlife Service will conduct the course on Rodent Control.

Dr. John B. Schmitt, Department of Entomology, Rutgers University will instruct on the subject of Insect and Mite Parasites of Rodents, and Their Relation to the Welfare of Man.

Dr. Leslie Stauber, Assistant Professor of Zoology, Rutgers University will instruct on the subject of Internal Parasites of Rodents Associated with Human Diseases.

Dr. T. E. Snyder, Senior Entomologist, Forest Insect Investigations, Bureau of Entomology and Plant Quarantine, will be a guest of the Department of Entomology of Rutgers University and will be the feature participant in the Termite Control Session.

Registration will be strictly limited. For particulars thereto, communicate with Abe Charnack, Secretary, New Jersey Pest Control Association, 252 Chancellor Ave., Newark, N. J.

'Exterminating Services' Opens Havana Branch

The Exterminating Services Corporation (N. Y.) has opened a branch office in Havana, Cuba, thereby becoming, to the best of our knowledge, the first American pest control firm to operate in a country outside the U. S.

Reviewing the new set-up and conditions in Havana from whence he returned last month, Jacques J. Hess, a member of the firm, stated, among other things: "This is a venture not recommended to Americans desirous of getting rich quickly or easily. . . . Importation of materials from the States is slow and expensive, and, of course, a knowledge of the language is essential. DDT is here to some extent and helping us to get people bug conscious. Cucarachas of all sizes, shapes and forms are the principle pest, with bedbugs and ants following. Our usual materials, pyrethrum, fluoride, etc., work well, but technical problems are greater than in the U. S. We have nice office space [at Neptuno 638], one of the main streets, with a display and electric sign that cause much comment. We have been photographed with the Health Minister, Director of Sanitation, etc. This, together with columns of publicity, has appeared in every newspaper here. . . . Some day, perhaps, Havana will play host to a NPCA convention. A grand time would be promised all." . . .

Best of luck, Mr. Hess, in your venturesome undertaking, one which in its way, we are sure, will help cement 'good neighbor' relations.—Ed.

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Our LINE is planned for the discretionary buyer who looks for intrinsic worth.
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This train the day photographed delivered its passengers exactly "on time" in Chicago.
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SPARKILL, NEW YORK, U.S.A.

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Kills cockroaches by contact. Acts quickly and gives lasting killing power after application. Non-poisonous to humans and warm-blooded animals. Made from piperonyl cyclophexenone, the new and highly toxic insecticide. Also contains pyrethrins which add to killing power.

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DRY SODIUM ARSENITE: Soluble in water or use In dry form. Contains 75% Arsenious oxide

ATLAS "A": Concentrated sodium arsenite solution. One gallon equivalent to 5.33 pounds of Dry Sodium Arsenite.

Now available — write today for circular and complete information!

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LOCAL ORGANIZATION NEWS

Indiana State Pest Control Operators Association

The annual business meeting of the Indiana State Pest Control Operators Association was held in Room 263 of the Union Memorial Building, Purdue University, Lafayette, Indiana, on the evening of January 29th, 1946, in conjunction with the Tenth Annual Pest Control Conference, which was in session during the whole week.

Newly elected officers included: H. B. Jordan, president; C. O. Partlow, vice-president; Bert Lewis, secretary-treasurer; directors: J. R. Franklin, E. H. Arnott and George T. Hunter.

Much business was discussed as to the future policies of the Association but were left open for action by the new president.

Those attending included: Maurice Bailie, South Bend Exterminating Co., South Bend; Bert Lewis, Lewis Pest Control, Muncie; J. R. Franklin, Hammond Exterminating Co., Hammond; John M. Lewis Lewis Pest Control, Muncie; Emil McGaughey, H & M Exterminators, Highland; L. C. Baxter, Baxter Exterminating Co., Anderson; George Spellios, General Exterminating Co., Indianapolis; Walter S. Gibson, Extermital Termite Service, Lafayette; Dr. H. O. Deay, Purdue Univ., Lafayette; H. B. Jordan, Arab Pest Control Co., Indianapolis; L. H. Large, Valparaiso Exterminating Co., Valparaiso; H. E. Miller, Arab Pest Control Co., Indianapolis; Kenneth H. Draper, Arab Pest Control Co., Indianapolis, and Afred H. Green, Federal Chemical Co., Indianapolis.

The next meeting will be called on March 23, 1946, to be held at Purdue University, Lafayette, Indiana.

Professional Exterminators Association, Inc., New York City

For three exciting hours, Ernest M. Mills of the U. S. Fish and Wildlife Service held the PEA group spellbound with his 1080-ANTU lecture at the Association's regular monthly meeting at The Hotel Commodore on January 14th, 1946.

Fifty members and guests attended among whom were several members of the New Jersey Pest Control Association.

Class rooms have difficulty holding pupils to a 40-minute lecture but at PEA's crowded meeting the members were held spellbound; and exhausted Ernie Mills was permitted to stop talking by the reluctant group after three hours. In his usual clear, concise and informative manner, he outlined his own experiments and results of work by others with these new rodenticides.

Jack Shaff, Secretary and William Farrell, Treasurer, read their respective Annual Reports and Milford H. Oachs, President, presided. The names of four new members who were accepted during December as well as two others who are applying for membership, were announced.

As customary, the group retired to continue with the discussion of 1080-ANTU during a midnight snack.

These people just won't go home!

Submitted by Wm. Farrell, Secy.

Buy MORE Victory Bonds

Northern California Pest Control Association

At The Northern California Pest Control Association meeting held recently at Berkeley, the following temporary officers were elected to serve during the fiscal year 1946:

V. H. Montgomery, President, San Francisco.

C. D. Cain, Vice-President, Fresno.

E. O. Corson, Director—1 year, Berkeley.

J. E. Baechler, Director—3 years, San Jose.

A. T. Parsons Director—1 year, Burlingame.

V. B. Fortna, Director—3 years, Santa Rosa.

W. P. Newton, Director—2 years, Stockton.

E. L. Barrett, Treasurer, Berkeley.

H. H. Montgomery, Secretary, 1161 Post Street, San Francisco 9.

Georgia PCO's Organize a State Association

The afternoon and evening on February 11 were given over to an invitational meeting held at The Ansley Hotel, Atlanta, Georgia at which there was organized The Georgia Pest Control Association. Until the formal Constitution and By-Laws are adopted, temporary officers were elected with Glen H. Burnett of Atlanta, President; Fred P. Wright of Augusta, Vice-President, and Harry York, Secretary-Treasurer.

Committee appointed: Constitution and By-Laws comprises Fred A. York, Forrest Knox and T. Y. Gibson; Legislative Committee comprises Fred A. York, Richard Nolan, L. R. Tindoll and Ted Oser.

During the afternoon session over which Glen Burnett presided, the principal discussion included industry problems, promotion of organization and "1080". "Bill" Buettner, Secretary of the National Pest Control Association conducted the open forum.

Following a banquet talks were given by Theodore Oser, President of the NPCA; Stafford W. Graydon, Public Health Engineer of Atlanta; J. A. William, Public Health Engineer, Muscogee County Health Department, Columbus, Ga., and Major Harry G. Hanson, Sanitary Engineer and Executive Officer, Malaria Control in War Areas, U. S. Public Health Service and William O. Buettner, Secretary of NPCA. The theme song throughout the talks was that of congratulations in the formation of a State organization and the tremendous good that could be accomplished.

Among those in attendance were:
R. W. Bainbridge, Orkin Ext. Co., Atlanta.
W. F. Boone, Atlanta Ext. Co., Atlanta.
M. Braudt, Orkin Ext. Co., Atlanta.
Glenn H. Burnett, Getz Ext. Co., Atlanta.
C. B. Clifton, Capitol Chemical Co., Atlanta.
J. E. Coleman, Orkin Ext. Co., Atlanta.
W. E. Crawford, Orkin Ext. Co., Columbus.
Paul DeGouras, P.D.G. Ext. Co., Atlanta.
Cliff Denny, Orkin Ext. Co., Columbus.
W. J. Dornbach, No Vex Co., Atlanta.
T. J. Gibson, Jr., Orkin Ext. Co., Augusta.
A. S. Greever, Bruce Terminix Co., Augusta.
Roy Knox, Biltmore Ext. Co., Atlanta.
Forrest Knox, Biltmore Ext. Co., Atlanta.
R. L. McNeely, Yates Ext. Co., Savannah.
J. L. Allgood, Georgia Ext. Co., Atlanta.
W. H. Morris, Capitol Chemical, Atlanta.
W. E. Morris, Reliable Ext. Co., Augusta.
Nolen Exterminators, Inc., Atlanta.
Ted Oser, Orkin Ext. Co., Atlanta.
R. L. Tindol, Georgia Ext. Co., Atlanta.
A. B. Wright, Wright Pest Control, Augusta.
R. Warren, Warren Ext. Service, Savannah.
Fred A. York, Jr., Fred A. York Ext. Co., Atlanta.
T. H. York, Fred A. York Ext. Co., Atlanta.
F. H. Yates, Yates Ext. Co., Savannah.
Wm. O. Buettner, Secretary of NPCA, Brooklyn, N. Y.
J. A. William, Public Health Engineer, Muscogee County Health Dept., Columbus.
Stafford W. Graydon, Public Health Engineer, City of Atlanta, Atlanta.
Major Harry G. Hanson, Sanitary Engineer Executive Office, Malaria Control in War Areas, U.S.P.H.S., Atlanta.

The Northwest Pest Control Association

The Northwest Pest Control Association held its regular annual meeting on February 15, 1946. The following officers were re-elected for the coming year:

H. V. Smith, Smith Exterminating Company, President.

H. N. Harmer, Rose Exterminator Company, Vice-President.

Leo Davis, Fumigation Engineering Corp., Secretary-Treasurer.

WIZO
RAT GLUE BOARDS

Eliminate Use of Poison!
Require No Bait!

A practical and economical way to rid buildings of rodent pests! No hazards of poisoned bait . . . or of decomposition! Easy to prepare! Just place WIZO Rat Boards near rat hole or form a runway next to walls. Fasten boards to floor to prevent pulling away. Rodents are caught firmly the moment they step on the boards.

WIZO RAT GLUE can be obtained in quantities for preparing your own boards. Write for complete particulars.

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Economically, Permanently, Positively and **Lawfully** from any type of structure.

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No Quarter!

Larvacide Tear Gas Fumigant

Doesn't compromise with pests. Destroys rodents without carcass nuisance. Blitzes insects, even moth and other "elusives"—along with their larvae and egglife.

LESS RISK—because unmistakable tear gas warning drives out all who don't belong. Larvacide literature gives time—and money-saving hints for P.C.Os., also shows short cuts in rodent work. *Write for it today!*

CONVENIENT PACKAGING for any job, large or small. Cylinders 25, 50, 100 and 180 lbs.; handy 1 lb. Dispenser Bottles in sealed cans, 12 to case. Stocked major cities.

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The most widely used carrier or diluent in Pest Control Powders

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Warehouse stocks available at strategic points throughout the United States

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Easy TO USE

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ANT TRAPS, 1, 3 & 7½ oz. Tubes
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Used professionally it assures customer satisfaction.

Preferred by discriminating PCO's.

For safety in service work use MAGIKIL ANT TRAPS.

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EXTERMINATORS CHEMICALS

RUMETAN (Zinc Phosphide)
FOR RAT CONTROL

(The ideal poison for Rats, Mice and Mole Crickets
Effective and Economical)

Sodium Fluoride, White and Tinted
Sodium Silico Fluoride
Pyrethrum Powder
Sodium Arsenate, etc.

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WHAT'S NEW IN PEST CONTROL-PERSONALS

Wednesday noon, **J. J. DAVIS, TED OSER,** and **HARLEM IVES** were on the air, singing the praises of the pest control industry.

Wednesday afternoon **HARLEM IVES** spoke before the Purdue Biological Society on the PCO industry.

Unfortunately, Purdue's new President, **DOCTOR HOVDE,** had an engagement in New York which prevented his attending the dinner. However, a delegation consisting of Bill Buettner, Norman Dold, Dr. Steckel, Walter McCloud, and Ted Oser, conferred with the new president and were impressed with his sincerity and interest in the industry.

FROSTY wasn't taking any chances so he provided three gallon cans with sand for the ash trays. He says he's glad the PCO's have annual rather than semi-annual conferences.

"STINKY" HATFIELD was responsible for picket line labaled "Anti-PCO."

SANDY'S favorite song on getting up is "It's good to get up in the morning". For some others the morning theme song is "Please go way and let me sleep".

PROF. J. J. DAVIS of Purdue University, spoke before the Western New York Section of the American Chemical Society at University of Buffalo on "Chemistry and Pest Control."

A. M. VANCE and **WILLIAM G. BRADLEY,** of the federal Corn Borer Investigations; George C. Decker, Entomologist of the Illinois State Natural History Survey; and Prof. J. J. Davis, head of the Entomology Department of Purdue University, took part in a state-wide conference on the European corn borer, held at Cedar Rapids, Iowa, January 16 and 17, under the direction of C. J. Drake, head of the Entomology Department of Iowa State College.

WILLIAM F. HARDY, recently released from the United States Army and formerly employed by The Dow Chemical Company at their office in St. Louis, Missouri, has returned to Dow. He will be associated with the Agricultural Chemical Division of the company and will be stationed at the St. Louis Office.

REJOINS MONSANTA—T. C. Tupper, 41, is now stationed in the Monsanto Chemical Company's Organic Sales Division Office at Cleveland. His territory will be Northern Ohio.

Mr. Tupper, who joined Monsanto as a salesman in 1933, was discharged from the Army late last year after five years' service. He was a captain in Cavalry.

The territory which Mr. Tupper will cover is under Monsanto's Organic Chemicals Division Products Branch office at Detroit which is managed by William Russell.

At the Training Course for Typhus Personnel conducted by the In-Service Training Section of the U. S. Public Health Service, **WILLIAM O. BUETTNER,** Secretary of the NPCA spoke on the subject "Relationship of Pest Control Operators." It was the concensus of opinion that cooperation could be genuine if PCO's apply themselves. The Training Course is one month's duration from February 6th through March 8th with emphasis on Rodent Control.

PRESIDENT THEODORE OSER of the National Pest Control Association represented the Pest Control Industry at an open forum radio broadcast at Lynchburg, Va., on February 10. 'Tis said that Ted has a real radio voice.

EIGHT RESEARCHERS JOIN WHITEMARSH LABORATORY STAFF

Eight additional researchers have joined the staff of almost 100 at the Pennsylvania Salt Manufacturing Company's Whitemarsh Research Laboratories in the expanded postwar research program under Dr. S. C. Ogburn, Jr., Pennsalt's Manager of Research and Development.

The new staff members are Dr. Martin Leatherman, a former Major in the Chemical Warfare Service Technical Command; Robert H. Tiers, formerly with Pratt and Whitney Aircraft Corp.; Dr. W. J. Knapp, formerly with North American Cement Co., and recently in the U. S. Navy; Glendon B. Kyker, formerly with Hooker Electrochemical Co.; H. A. Kraftson, formerly with E. I. duPont deNemours Company; Frederick D. Loomis, recently released from the U. S. Army; Peter Zappasodi, chemist at Pennsalt's Philadelphia plant; and, E. J. Nolan, formerly with Rohm and Haas Co.

N.R.C. ISSUES ABSTRACTS ON INSECT AND RODENT CONTROL—The National Research Council, 2101 Constitution Avenue, Washington 25, D.C., is issuing, on a bi-weekly basis, abstracts of a large amount of information on insect and rodent control which accumulated during the war. Released from security restrictions, the data, it is anticipated, will require 12 issues, first of which has already been published.

NEW QUARTERS FOR D. & O. INSECTICIDE DIVISION—Dodge & Olcott, Inc., has moved the offices of its Insecticide Division from 180 Varick Street to 60 East 42nd Street, N. Y. The new telephone number is Murray Hill 2-6700.

"DDT FACTS vs. FICTION" is the title of a free booklet distributed by the Ampion Corporation, 23rd St. and 37th Avenue, Long Island City, N. Y. Inquiries should be addressed to Department "P."

The offices of the Insecticide Division of **DODGE & OLCOTT, INC.** will be moved from 180 Varick Street and located at 60 East 42nd Street. All mail and telegrams dealing with insecticide and insectifuge materials should be addressed to: Insecticide Division, Dodge & Olcott, Inc., 60 East 42nd Street, New York 17, N. Y.

ALLEN B. LEMMON has been appointed Chief of the Bureau of Chemistry, State Dept., of Agricultural of California.

Mr. Lemmon has been Dr. Alvin J. Cox's Assistant for several years and since Dr. Cox's retirement, he has been acting as Chief of Bureau until his recent appointment.

Mr. Lemmon is a graduate of Stanford University. He received his A.B. in 1930 and his C.B. in 1932. He entered State service in 1933.

DAVID J. RICHARDS, owner of the Richards Pest Control Service of Portland, Oregon, passed away January 17, 1946, after a long illness.

He was a native of Wales and when a boy came with his parents to the United States.

Early in life he engaged in carpentering, building, also railroad and stationary engineering. For five years he was a manual training teacher in Omaha. He came here in February, 1916, and for nearly 30 years has been in the pest control business.

We extend our deep sympathy to his wife and family.

VETERAN APPOINTED IN RODENT CONTROL—Lt. Milton Caroline, recently discharged from the navy, has been assigned to Lafayette as assistant district agent in rodent control, U. S. Fish and Wildlife service, it was announced Friday by Dr. J. J. Davis, Purdue university, head of the department of entomology.

Caroline, graduate of the University of Missouri, has had considerable experience in wildlife problems and rodent control. He was formerly with the Connecticut fish and game commission and at the time of joining the armed forces was employed in the rodent control program of the city of St. Louis.

THE ROSE EXTERMINATOR CO., of Detroit, Michigan, has moved to their new office and laboratories, 12652 Livernoise Avenue.

When visiting Detroit, drop in and see the new office.

LALANDE TO HEAD WHITEMARSH RESEARCH LABORATORIES

Dr. W. A. LaLande, Jr. has been appointed Director of Whitemarsh Research Laboratories of the Pennsylvania Salt Manufacturing Company, Dr. S. C. Ogburn, Jr., Manager of Research and Development has announced.

Dr. LaLande, formerly Director of Research of the Attapulgus Clay Company, and previously a member of the chemistry faculty of the Univeristy of Pennsylvania, came to Pennsalt in August 1944 as Director of the Research Division. In his new position, he will have charge of all activities at the new Whitemarsh Research Laboratories except those of the Patent Division. These activities include laboratory research, pilot plant operations, product evaluation studies, and technical sales service work.

SIGN IN A BOWERY (N. Y.) flophouse: Beds, 50c a night; with DDT, 75c.
—From Fred Allen's Radio Program.

GRADUATE ENTOMOLOGIES

Large commercial pest control company requests services of graduate entomologies, 25-35 years old, for field work. Salary commensurate with applicant's requirements and ability.

GUARANTEED SANITATION, INC.

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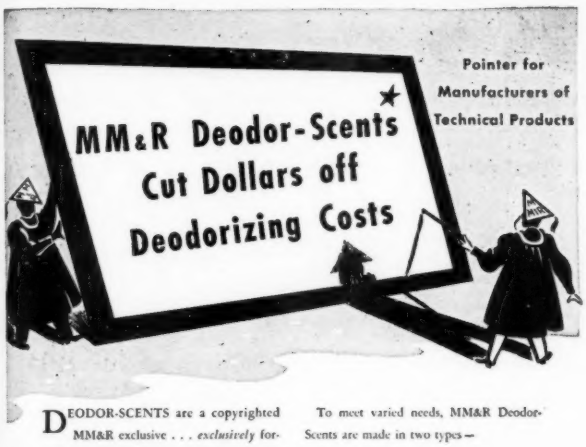

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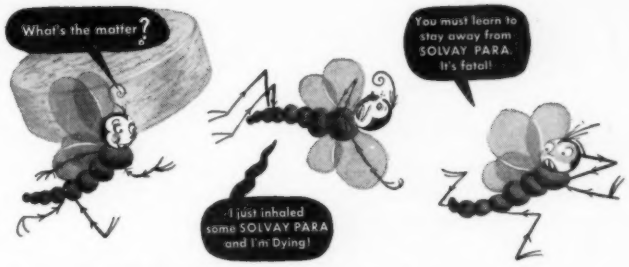

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Is the title of an informative bulletin on the subject. Also included are answers to some fumigation questions of interest to every PCO.

Write AMERICAN CYANAMID & CHEMICAL CO., Inc., 30 Rockefeller Plaza, New York 20, N. Y.

FUMIGATION SAFETY RULE

BULLETIN 80.

EFFECT OF HYDROCYANIC ACID ON FOODSTUFFS

REMOVAL OF PHOTOGRAPHIC FILMS AND PAPERS BEFORE FUMIGATION

BULLETIN 88.

EDUCATE THE DOCTOR IN FUMIGATION FIRST AID PROCEDURE

ELECTRIC FANS HAVE SEVERAL USEFUL FUNCTIONS IN FUMIGATION WORK

BULLETIN 84.

DDT FORMULATIONS BULLETIN DISCUSSES

BULLETIN 94.

FUMIGATOR'S FIRST AID KIT

BULLETIN 93.

DEVELOPMENT OF HCN FUMIGATION

BULLETIN 96.

METHYL ORANGE TEST PAPERS

BULLETIN 95.

MECHANICAL MEANS FOR QUICK VENTILATION OF FUMIGATED SPACES

BULLETIN 97.

CALCIUM CYANIDE FOR RAT CONTROL

THE MODERN TREATMENT OF CYANIDE POISONING

NEW EDITION FUMIGATION MANUAL NOW AVAILABLE

ELECTRIC FANS

Bulletin discusses value of electric fans in connection with fumigation work, also some pertinent thoughts on the Schafer Prone Pressure Method of Resuscitation, etc.

FOR THE FOLLOWING PUBLICATIONS
WRITE WOOD TREATING CHEMICAL CO., 5137 Southwest Ave., St. Louis 10, Mo.

WOOD TREATING CHEMICALS

Leaflet, color-illustrated, describes pentachlorophenol-based wood-treating chemicals available in ready-to-use or concentrated form for wood preservation, termite prevention and dimensional control. Also discussed are such methods of wood impregnation as: vacuum-and-pressure, hot and cold open tank and cold open tank.

Write WOOD TREATING CHEMICALS CO., 5137 Southwest Avenue, St. Louis 10, Mo.

WOOD PRESERVATIVES

Discussed are several products for the control of decay, blue stain, termites, powder post beetles, swelling, warping, checking, shrinking, moisture absorption, grain raising. Illustrated.

TERRATOX CONCENTRATES

Circular depicts damage by termites, Lyctus Beetles and decay.

RAT GLUE AND BOARDS CIRCULAR

Discusses use of rat glue boards as a means for effective rat control, etc.

WRITE ELKAY PRODUCTS CO., 323 West 16th St., New York City.

A 115 page DDT Bibliography, giving formula, rate, method of application on household insects and agricultural purpose.

Write J. T. BAKER CHEMICAL CO., Phillipsburg, New Jersey.

FOR THE FOLLOWING PUBLICATIONS
WRITE SOLVAY SALES CO., 40 Rector St., N. Y. C.

SOLVAY PRODUCTS

48-page booklet in colors and illustrations covering their entire line of Alkalies and Special Products, with a special section dealing with Para-Dichlorobenzene and Ortho-Dichlorobenzene.

FREE COPY.

MOTH DAMAGE PREVENTIVE

Leaflet discusses value of para-dichlorobenzene in moth control, directions in using, and its value as a deodorant.

PYRETHRUM - DERRIS - RED SQUILL PRODUCTS

Leaflet describes foregoing insecticides with special bait chart for use in connection with powdered red squill.

WRITE R. J. PRENTISS & CO., 110 William St., New York City 7, N. Y.

NEW SAFETY EQUIPMENT CATALOG

The new, complete 178-page 6-B Catalog has just been published by Mine Safety Appliances Company, describing and illustrating the complete range of M.S.A. safety equipment for industrial application, including many new products.

A 6-page introductory section illustrates and describes the complete research laboratories and plant facilities of Mine Safety Appliances Company.

The regular edition of the 6-B Catalog is in its usual 8½"x11" size. Also available is a new, handy, pocket-size edition of this catalog 5"x6½", containing the same material and number of pages as the large edition, but in the miniature size.

Copies may be secured by writing to Mine Safety Appliances Company, Pittsburgh 8, Pa.

FOR THE FOLLOWING PUBLICATIONS
WRITE SPARHAWK CO., Sparkill, N. Y.

ANIMAL ODORS AS REPELLENTS AND ATTRACTANTS

Incorporation of the glandular extraction of the skunk into commercial repellents to add to their potency and efficacy is discussed in an interesting article, entitled "The Odor of an Enemy, the Cat, Frightens Mice Away," by Charles V. Sparhawk.

"SKUNKADORA" . . . DEODORANT

A simple method to eliminate odors.

INSECT TRAPS

Bulletins describe traps for ants and roaches, with suggestions for their use.

WRITE O. E. LINCK CO., Montclair, N. J.

FOR THE FOLLOWING PUBLICATIONS
WRITE ROHM & HAAS CO., W. Wash. Sq., Philadelphia, Pa.

SYNTHETIC ROACH POWDERS

Research material apropos thiocyanates in powdered form for roach control in place of pyrethrum—describes the development and properties of roach, ant and bedbug powder based on Lethane A-70.

RHothane D3 and DDT IN INSECTICIDAL FORMULATIONS

Presents properties of both RHothane D3 and DDT, together with information regarding the formulation of household and livestock sprays based on RHothane and DDT, or on combinations of these with Lethane 384 and Lethane 384 Special.

SPECIAL ROACH POWDER

Circular describes a roach powder (containing Lethane A 70) which, it is stated, is fast acting, positive in kill and will not deteriorate for at least eight weeks after application. The powder is non-toxic to warm-blooded animals and may, therefore, be used in dairies, packing and food handling plants, homes, etc.

WRITE A. D. BOSLEY CO., 3048 W. Penn, Indianapolis 5, Indiana.

NEW RAT BAIT

The Vegex Company, located at 175 Fifth Avenue, New York 10, N. Y., puts up this Dry Gravy in 5-pound packages only. One 5-pound package makes 5 gallons of finished Gravy. Prices and other pertinent data on Vegex Rat Bait may be had by writing the company.

FOR THE FOLLOWING PUBLICATIONS
WRITE HERCULES POWDER CO., Wilmington, Delaware.

SIX TOXICANTS

Release describes six different types of toxicants, combinations of a type of Thanite and DDT or DDT.

INSECT POISONING AGENTS

"Thanite, quick death to insects" is a 12-page booklet. It discusses the development and applications of the product.

RED SQUILL FOR RAT CONTROL

An informative brochure on the value of red squill in control of rats, mice; its effect on domestic animals and man.

WRITE S. B. PENICK & CO., 50 Church St., N. Y. C. 7.

PIGEON-PROOFING

Folder describes pigeon-proofing invention which manufacturer claims will completely and decisively eliminate the pigeon nuisance.

WRITE STANLEY'S ROOFING & BLDG. SERVICE, INC., 523 W. 184th St., N. Y. C.

Phosphorous Paste killing power; baits, combinations, amounts for the control of roaches, mice, rats are discussed.

WRITE JOHN OPITZ, INC., 50-14-39th St., Long Island City 4, N. Y.

FOR THE FOLLOWING PUBLICATIONS
WRITE A. D. CHAPMAN & CO., 333 No. Michigan Ave., Chicago 1, Ill.

PRESERVATION OF LUMBER, POLES, POSTS, PLYWOOD WITH PENTACHLORPHENOL

This bulletin gives a brief summary of the properties, use to date, and recommendations for the preservative treatment of lumber, poles, posts, and other forest products with Permatox A.

BULLETIN 43-A.

CONTROL OF TERMITES-POWDER-POST (LYCTUS) BEETLES-DECAY

FOR THE FOLLOWING PUBLICATIONS
WRITE NOTT MFG. COMPANY, Mount Vernon, New York.

NEW ANT TRAP

Manufacturer claims many new features such as no turning or twisting necessary; four openings; larger trap; contents ½ greater than any other competitive brand.

WRITE FOR YOUR FREE SAMPLE OF ANT TRAP.

THALLIUM PRODUCTS

Circular calls attention to ant traps and jelly bait for control of ants—house or garden; mice seeds, rat paste, etc.

FOR THE FOLLOWING PUBLICATIONS
Reprint of foregoing may be had by writing John Powell Co., 1 Park Avenue, N. Y.

DDT IS POISONOUS

An article by Herbert O. Calvery, Food and Drug Administration, which discusses tolerance level deemed necessary when it is used on human food.

DDT

Labeling Instructions issued by Insecticide Division, U. S. Department of Agriculture, W. G. Reed, Chief.

NH DUST

Leaflet describes new organic insecticide compound which, it is stated, may be used where non-poisonous insecticides are mandatory. Effective against roaches, silverfish, ants, fleas, lice and many other common pests found in the home, industrial and food storage plants.

NEW RECHARGEABLE FLASHLIGHT BATTERY

Where flashlights are used regularly, the rechargeable feature of the Storage Battery is said to provide greater economy and brighter, sustained light.

WRITE IDEAL COMMUTATOR DRESSER CO., Syracuse, Ill.

NEW BIG 6 LINE OF WIZO MOTH KILLER VAPORIZERS AND CRYSTALS

Catalog describing each product fully and prices available.

WRITE ELKAY PRODUCTS CO., 323 West 16th St., N. Y. C.

FOR THE FOLLOWING PUBLICATIONS
WRITE DOW CHEMICAL CO., Midland, Michigan.

METHYL BROMIDE APPLICATORS AND SUPPLEMENTARY EQUIPMENT

Profusely illustrated booklet describes applicators for use with cylinders; application of methyl bromide by direct weighing of cylinders; tubing and piping; piping system for mill and warehouse; sealing materials; fans; tarpaulins; safety equipment.

FUMIGATION AND PLASTICS

Discusses use co-ordination of such diverse chemical products as plastics and fumigants in connection with infested bagged grain, seed, packaged or boxed foodstuffs.

METHYL BROMIDE FOR INFESTATION CONTROL

Reprint of an article by J. Carl Dawson which discusses insect control in the flour mill and warehouse with methyl bromide. Illustrated.

RESPONSE OF RATS MAINTAINED ON DIETS FUMIGATED WITH METHYL BROMIDE

FIRST AID AND TREATMENT FOR METHYL BROMIDE EXPOSURE

This valuable booklet, prepared by Dr. H. H. Gay, Medical Director, The Dow Chemical Company, Midland, Mich., outlines first aid and treatment for Methyl Bromide exposures.

BOX CAR FUMIGATION

Folder describes box car fumigation with methyl bromide, giving details as to: methyl bromide application, dosage, exposure period, temperature, aeration, precautions.

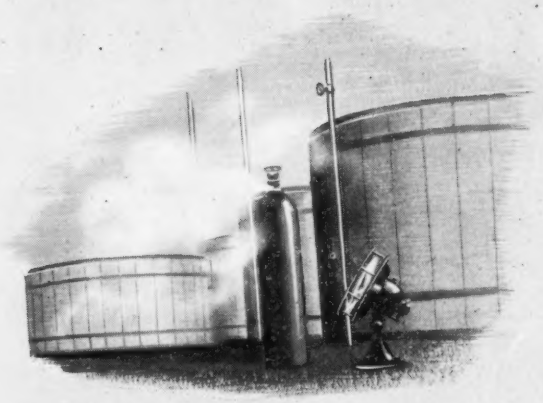
VICTOR GLADIATOR METAL RAT TRAP

WRITE ANIMAL TRAP CORP. OF AMERICA, Lititz 1, Pa.

Case History*

ROACH CONTROL IN DAIRY PLANTS

Dow Methyl Bromide Put an End to His Roach Problem



A midwestern dairy plant suffering from an infestation of roaches was confronted with the problem of performing an effective fumigation without interfering with normal daytime operation. An industrial fumigator, acquainted with the outstanding reputation of Dow Methyl Bromide, accomplished this difficult task by proceeding under the following plan:

Preparation of Building: Building carefully sealed while plant was operating. Later, boiler fire was extinguished and draft doors sealed to prevent leakage.

Dosage and Exposure Period: 1½ pounds of Methyl Bromide per 1,000 cubic feet for eight-hour period (no skippers were present or two pounds would have been used).

Method of Application: Methyl Bromide released from cylinders and circulated by fans.

Aeration Period: One hour with fans operating. (Not being water soluble, Methyl Bromide is quickly expelled despite moisture.)

Results: Entomologist's check revealed no insect life. Plant resumed operation following day.

Particularly difficult fumigation problems can often be solved by using Dow Methyl Bromide. If you are confronted with such a job, why not write us for information on how to handle it.

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Detroit • Chicago • St. Louis
Houston • San Francisco • Los Angeles • Seattle

*Actual record is on file at The Dow Chemical Company

The penetrating fumigant

Methyl Bromide

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND AGRICULTURE

AEROSOL BOMBS FOR RESALE!

Filled with Standard Approved Insecticide—2% Pyrethrum Extract, 3% D.D.T., 10% Solvents and 85% Freon.

At prices which will enable Distributors to handle the bombs at attractive profits.

Supplied with Distributor's label if ordered in sufficient quantities.

Packed 24 to a Shipping Carton.

HI-TOX, MORTICIDE and SUPER-MORTICIDE are now obtainable with D.D.T. added. NO INCREASE IN OUR PRICES.

D.D.T. Solutions containing from 5% to 50% D.D.T. Technical Grade.

D.D.T. Powders with 10% to 50% D.D.T. Technical Grade.

MORTOLIN—Concentrate for Moth-proofing Compounds.

Write our office nearest you for full particulars.

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